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Jan 1976/Volume 42/No 1

Canadian Dental Association/Association Dentaire Canadienne



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McINTOSH RESIGNS AS EXECUTIVE DIRECTOR

The Executive Council of the CDA has accepted the resignation of W.G. McIntosh as executive director, effective June 1, 1976. Dr. McIntosh has served in the office since September 1964 and was appointed full-time secretary January 1965. He had been associated with CDA in many capacities, including the presidency 1959-60 and as a member of the Board of Governors from 1957 to 1961. Other offices included chairmanship of the Research Committee and chairmanship of the Dental Services Committee.

MANITOBA EXPANDS PORTABILITY FOR ASSISTANTS

Dental assistants who graduate from recognized provincial training programs in Ontario or any province west of Ontario will now be accepted without further examination by the Manitoba Dental Association. The Association feels this recognition is a progressive step in offering greater portability to intra-oral assistants.

ONTARIO COLLEGE MOVES ON CONTINUING EDUCATION

Ontario dentists renewing their licenses in January 1977, will be asked to record any courses taken during the previous year (1976). Similar reports will be asked for 1977 and 1978. The College will then assess the number and types of courses which licensed dentists are taking and a decision made as to whether to institute a provincial continuing education program and whether such a program should be made mandatory.

B.C. COLLEGE LEASES CLINICS IN UNDERSERVED AREAS

The College of Dental Surgeons of British Columbia reports remarkable success with its program of leasing fully-equipped dental clinics to private practitioners in underserved areas. The College provides complete physical plants for a three-chair clinic and has no problem in attracting dentists to take over the leases on a full-time basis or of finding established practitioners who will take a clinic for a short-term rotation.

Four new clinics are now operating and an additional 5 - 10 are planned. The College experimented with various combinations of government and community co-operation before hitting on this very successful formula.

NEW BY-LAW FOR SASKATCHEWAN REGISTRATION

Under the urging of the Saskatchewan government, the College of Dental Surgeons of Saskatchewan has introduced a new by-law which makes it possible for graduates of approved Canadian and U.S. dental schools to register in Saskatchewan without further examination. The new regulation applies only to graduates since 1948.

The provincial Dental Act will not be changed to allow dental nurses to work in private offices. This request from the College to the government was considered to be several years premature.

LE DR MCINTOSH DEMISSIONNE DE SON POSTE DE DIRECTEUR EXECUTIF

Le Conseil exécutif de l'ADC a accepté la démission du Dr. W.G. McIntosh, Directeur exécutif, qui prendra effet le 1er juin 1976. Le Dr McIntosh est entré en fonction en septembre 1964 et a été nommé secrétaire à plein temps en janvier 1965. Il a été associé à l'ADC à divers titres, notamment à titre de président du Bureau des gouverneurs en 1959-60 et en qualité de membre du Bureau de 1957 à 1961. Il a également exercé la fonction de président du Comité des recherches et celle de président du Comité des services dentaires.

LE COLLEGE DE COLOMBIE-BRITANNIQUE LOUE DES CLINIQUES DANS LES REGIONS MAL DESSERVIES

Le Collège des chirurgiens dentistes de Colombie-Britannique signale que son programme qui consiste à louer, dans les régions mal desservies, des cliniques dentaires entièrement équipées à des praticiens exerçant dans le secteur privé, a remporté un succès remarquable. Le Collège fournit des installations complètes pour une clinique à trois cabinets et n'éprouve aucune difficulté à attirer des dentistes qui prennent à leur charge des baux permanents ou à trouver des praticiens établis qui louent les cliniques pour un roulement à court-terme.

Quatre nouvelles cliniques sont actuellement en service et on envisage d'en créer entre cinq et dix autres. Le Collège a mis à l'essai plusieurs formules de collaboration gouvernementale et communautaire avant de trouver cette heureuse solution.

LE MANITOBA AUGMENTE LA MOBILITE DES ASSISTANTS

Les assistants dentaires ayant suivi avec succès des programmes provinciaux reconnus dans l'Ontario ou dans toute province située à l'ouest de l'Ontario, seront acceptés dès maintenant, sans examen supplémentaire, par l'Association dentaire du Manitoba. L'Association estime que cette acceptation constitue un pas en avant qui procurera aux assistants dentaires une plus grande mobilité.

NOUVEAU REGLEMENT CONCERNANT L'OBTENTION DU PERMIS PROFESSIONNEL EN SASKATCHEWAN

A la demande expresse du gouvernement de la Saskatchewan, le Collège des chirurgiens dentistes de la Saskatchewan vient de présenter un nouveau règlement qui permettra aux diplômés des écoles dentaires approuvées du Canada et des Etats-Unis d'obtenir leur permis en Saskatchewan sans passer d'examen. Ce nouveau règlement ne s'appliquera qu'aux dentistes diplômés depuis 1948.

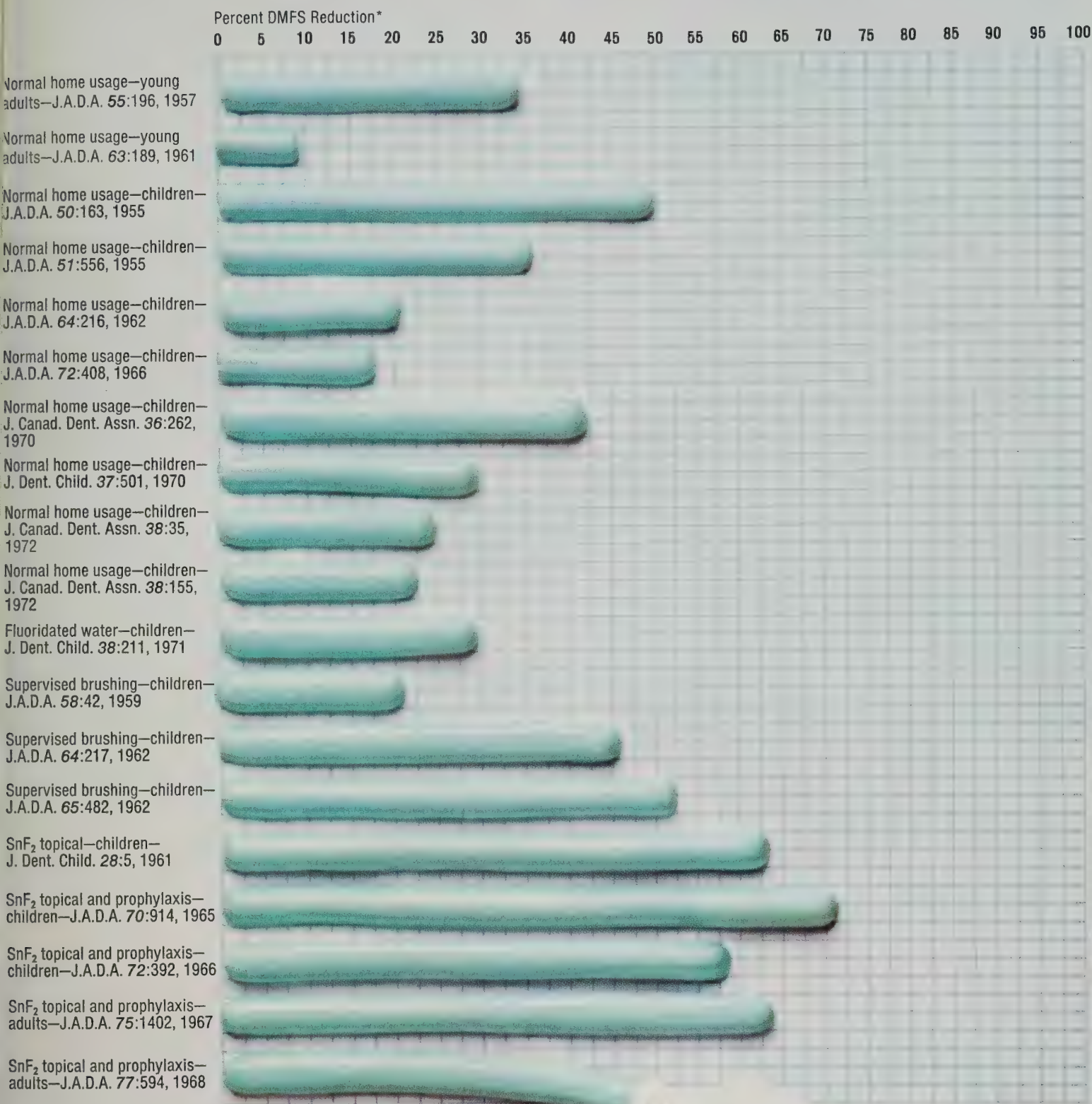
La Loi provinciale des dentistes ne sera pas modifiée pour permettre aux infirmières dentaires d'exercer en cabinet privé. On a estimé que cette demande adressée au gouvernement par le Collège était prématurée.

LE COLLEGE DE L'ONTARIO PREND DES MESURES RELATIVES A L'EDUCATION PERMANENTE

Les dentistes de l'Ontario qui renouvelleront leurs permis professionnels en janvier 1977 devront faire état de tous les cours qu'ils ont suivis durant l'année précédente (1976). On exigera des rapports semblables pour les années 1977 et 1978. Le Collège évaluera ensuite le nombre et le type de cours suivis par les dentistes diplômés pour décider s'il doit établir un programme d'éducation permanente à l'échelle provinciale et si un tel programme doit devenir obligatoire.

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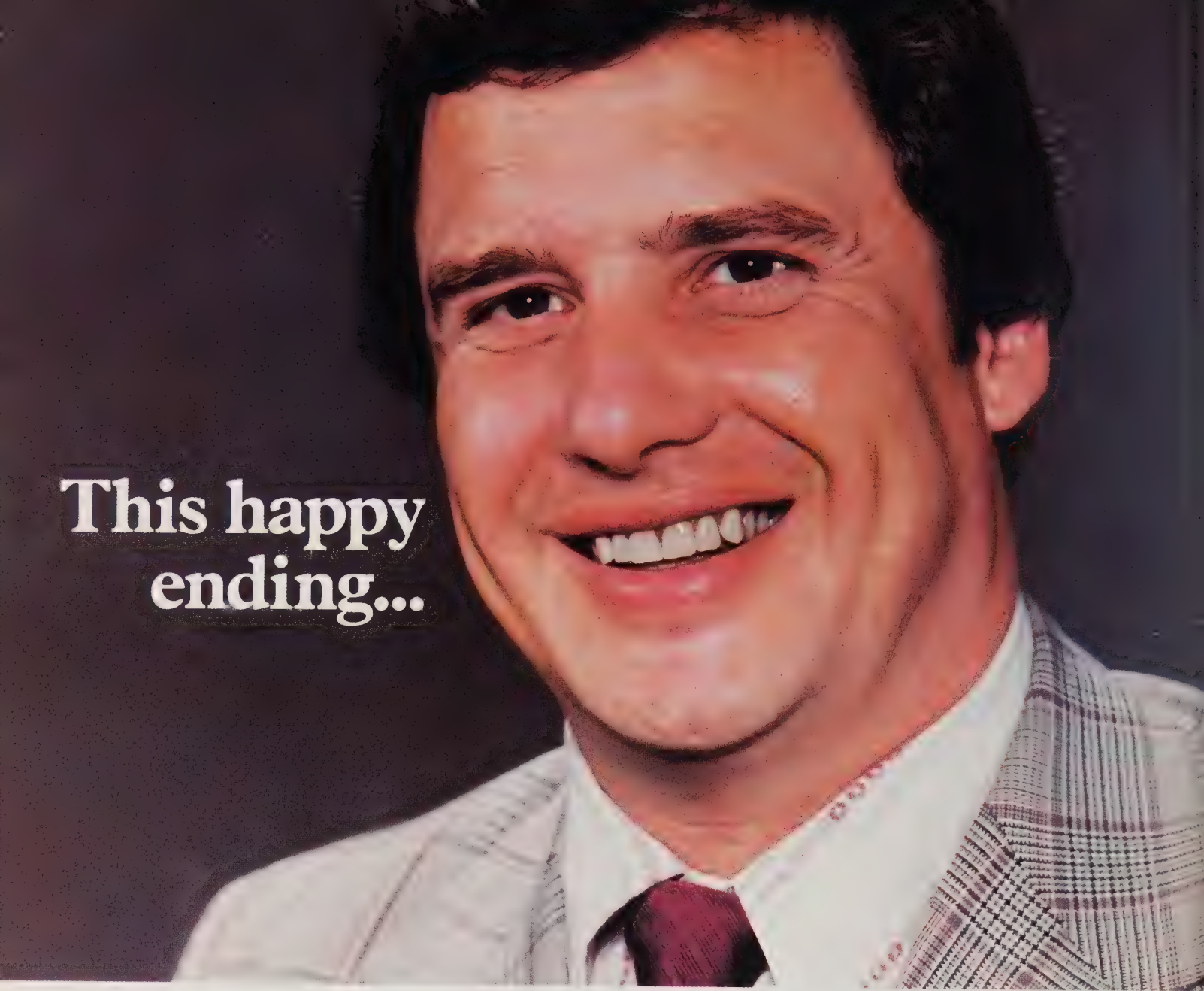
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Editorial

New Year's message from the President 8

Special Features

Current developments in periodontics

The whys and wherefores of periodontal surgery — Johnson 31

Wound healing and its periodontal implications — Stakiw 35

How does the profession cope with inflation?

A tax lawyer's viewpoint — Johnston 27

NDEB evaluates four years' experience — Proctor 20

Regular Features

Letters to the editor 6

Dentistry in the news 10

Les actualités dentaires 24

Deaths 14

In memoriam 14

Articles

Conseil pratique pour faciliter la prise de radiographies
periapicales à la mandibule — Galindo 38

Simulated dry socket: delayed healing of extraction wounds
in rats — Rozanis, Schofield and Kogon 41

Classified advertising 46

Advertisers' index 48

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La direction du Journal ne partage pas nécessairement les opinions qu'expriment ses collaborateurs à moins que l'Association Dentaire Canadienne ne les ait adoptées officiellement.

LETTERS TO THE EDITOR

Metric confusion

I was delighted to see the article in your August issue by Dr. Ralph Barolet concerning metrication. Before reading it, I mentally crossed my fingers in the hope that he would shed some light on what has become, for me, an acute problem.

It is certainly true that the dental profession is familiar with metric symbols. Manufacturers too, have gradually shifted, over the last few years, from pounds and ounces packaging toward metric, producing along the way some peculiar sizes in their effort to keep a foot in both camps. But in one specific area — units of strength — confusion reigns and I regret Dr. Barolet did not touch upon it.

In papers and literature published in the USA and, for the most part, in Canada, the old familiar pounds per square inch is still used. Most dentists, I am certain, quickly recognize the relative values of materials expressed in

this way. The Europeans and, recently, the British use the kilograms per centimeter squared system. While this may not be quite so familiar, to use a simple formula quickly renders Kg/Cm² to PSI for those who need to convert. (I confess to converting Celsius to Fahrenheit before deciding how hot or cold I am.)

Having just about made the adaptation to the metric system of indicating units of strength, I am now confounded by the appearance of what is to me a whole new way — Newtons per millimeter squared (N/mm²). Is this some dastardly plot by the scientific community to keep us reaching for our calculators, or a shotgun wedding of Mister Avoirdupois to Mademoiselle Metric?

Please, Dr. Barolet, take off the pressure!

*Les Jones,
Sales Director,
Amalgamated Dental,
Don Mills, Ontario.*

The concepts of mass and weight are confusing in the Imperial system because the units for both are pounds (pounds mass and pounds force). Simply, what this means is that an astronaut weighs less on the moon than on earth even though his mass is unchanged. The SI system recognizes this difference by having a unit of mass, the kilogram, a unit of force, the Newton, and a unit of pressure, the Pascal (N/m²).

If simple formulae are required, the two below should do the trick:

$$1 \text{ psi} = 0.0704 \text{ kg/cm}^2 = 0.0069 \text{ MN/m}^2 = 0.0069 \text{ N/mm}^2 = 6.9 \text{ kPa}$$

$$1 \text{ N/mm}^2 = 1 \text{ MN/m}^2 = 1000 \text{ kPa} = 10.21 \text{ Kg/cm}^2 = 145 \text{ psi.}$$

*R. Y. Barolet,
Laval University,
Quebec City, Que.*

Announcements/Avis

Information about other meetings or courses, including American continuing education courses, may be obtained by writing to CDA headquarters.

Canadian Dental Association

1976, Edmonton, Alta, Sept. 12–15.

Fédération Dentaire Internationale

1976, Athens, Greece, Sept 26–Oct 2;
1977, Toronto, Oct 22–28.

International Association of Dental Students

23rd Annual Congress
1976, Bern, Switzerland,
July 30–Aug. 9.
1977–24th–Yugoslavia.

Canadian Meetings

Manitoba Dental Assn., at Winnipeg.
Jan. 30–31, 1976. B. Goldberg, 308
Kennedy St., Winnipeg, Man. R3B
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Dalhousie University, Dr. D. Chaytor, Chairman, Halifax,
Nova Scotia on or before January 19, 1976.

Drugs in dentistry,

Fredericton, N.B.

February 9-10, 1976

Periodontics I, Sydney, N.S.

February 13-14, 1976

Radiology, Corner Brook, Nfld.

February 27-28, 1976

Operative/Materials, Halifax

March 22-23, 1976

Post College Assembly

(place to be announced)

May 9-12, 1976

Canadian Society of Oral Surgeons,
at Halifax. July 24–27, 1976. D. J.
Murphy, 1773 Beech St., Halifax, N.S.

Canadian Occlusion Symposium, at
Chateau Lacombe, Edmonton. Sept.
12–13, 1976. J. N. Nasedkin, #415,
925 West Georgia, Vancouver, B.C.
V6C 1R5

**Montreal Dental Club Pre-Conven-
tion Seminar**, at Montreal. Nov.
13–14, 1976. Miss M. Komarnicka,

4166 St. Catherine St. W., Montreal
215, Que.

Montreal Dental Club Fall Clinic, at
Montreal. Nov. 15–17, 1976. Miss M.
Komarnicka, 4166 St. Catherine St.
W., Montreal 215, Que.

Les Journées Dentaires du Québec,
at Quebec Hilton, Quebec. May
22–26, 1977. Dr. M. R. Lang, 5171
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EDITORIAL

New Year's Message from the President

Nineteen seventy-five was a year of change for the Canadian Dental Association — and 1976 will be a year of consolidation of our goals and objectives. The goal since the April Task Force Special Board Meeting has been to make the CDA more responsive to its individual dentist members and its provincial corporate bodies. To be a viable organization, the Association must reflect this principle. There is no other way in which this, or any other, national organization can continue to function in an era of voluntary membership in professional associations.

It is true that now only two provinces, Ontario and Quebec, have government-decreed voluntary membership in professional organizations but these two constitute well over half of the total prospective membership of the Association. Since the Special Board Meeting, *active* membership in the CDA is only available through membership in the provincial body. This puts the onus on CDA to attract individual members in Ontario and Quebec through programs and services which are useful and necessary and can be seen to be in the best interests of the dentist. One of our major priorities, then, is a membership drive to enrol every licensed dentist in Ontario and Quebec.

Insurance and Investment

Particular emphasis is being given to the insurance and investment services on which almost every dentist in the country relies for his basic protection. The Board has proposed the division of the Council on Insurance and Investment into two so that full and complete attention can be given to each function by the dentist-members appointed to serve as planners and watch-dogs.

An ad hoc committee is currently studying the inter-relationship and the operations of the Council on Insurance and Investment and the administrative arm — Canadian Dental Service Plans Incorporated. The objective is to ensure the fullest co-operation without inefficient overlapping of functions. In addition, a review of all present insurance and investment plans has been started by professional consultants.

Ottawa move

Not only is the new Ottawa headquarters a prime piece of real estate which can only grow in value, it brings your national organization to the centre of federal activity in health care, in taxation and the control of inflation. There is an enlarged role which CDA must and will play from this vantage point.

The Association will now be in a better position to represent its members in advocating changes in personal income tax on such things as continuing education expenses, changes in the excise tax on dental supplies and equipment and for responsible manpower and immigration policies.

Association members will also be more closely represented before the elected Members of Parliament and the civil servants who are planning and controlling government moves in the fight against inflation. Dentists want to be responsible citizens — but they do not want to be scapegoats squeezed between the rising cost of practice and ceilings on earnings. CDA must be in Ottawa to speak for us all.

These are some of our larger objectives for the year 1976 but you can be sure we have all aspects of your Association well in hand: balancing the budget, setting priorities for activities of all councils, directing funds to necessary areas but cutting back on low priority programs.

As I travel around the country this year as your President, I will be giving a more detailed review of what is happening within CDA. When you see me at provincial meetings, ask me questions — tell me what's on your mind. This is the only way in which I and my colleagues on the Executive Council and your governors on the Board can accurately reflect your wishes. By working together, we can achieve an Association which is a reflection of the collective wishes of us all. We can achieve an Association which works for us and with us.

H. L. Mussells
Montreal

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COUNTRY-WIDE DENTAL HEALTH MONTH IN '76

The Dental Health Week of former years has been expanded to a full month's observance for February 1976. The theme once again is "Cavities are mean — so keep your teeth clean."

The decision to expand the time-span of the campaign was taken by provincial chairmen at a meeting March 1975, following the 1975 campaign. In many areas, chairmen report that manpower to operate a full publicity program is very limited. Expanding to a full month has enabled chairmen to plan their resources and to adapt activity dates to suit the availability of dentists, assistants and hygienists who volunteer to work for the program.

From last minute reports, provincial chairmen are once more planning a varied public education campaign based on the CDA master planning kit and materials. Posters and lapel stickers feature a group of happy children's faces. CDA will send radio spots to all stations in Canada as public service announcements. In addition, chairmen have lined up poster contests, shopping mall displays and school demonstrations.

Some grocery and dairy chains have agreed to use the Dental Health Month slogan on milk cartons and shopping bags — a sound idea when sensible nutrition is so much a part of good oral health.

Planning for the future

Last year, Dental Health Month chairmen formed themselves into an ad hoc committee of the CDA Council on Information Services. As a "Task Force on Preventive Dentistry" they worked to formulate a co-operative program which could be supported by all provinces. A grant from the Canadian Fund for Dental Education enabled the group to engage professional consultants to assist them. Their 88-page report, outlining a five year, year-long public and professional education campaign, has been accepted in principle by the Executive Council of the CDA. It is now being reviewed by each of the provincial corporate executives in order to gain complete, country-wide support for the concept as well as financial backing.

The ad hoc committee operated on the premise that pooling of present provincial funds would make it possible to produce professional-quality public service education materials. With such materials, they could hope to attract many dollars' worth of free publicity for Dental Health Month and dental health education all year round. The report also anticipates that manufacturers of oral hygiene products will want to participate in two ways — through their own advertising tied directly to co-operative public education themes and through donations to a gen-

eral fund. Other firms might also wish to contribute to such a fund. CFDE has been approached to see if such a fund could be handled in conjunction with CDA.

If you want to work on this year's Dental Health Month campaign, your provincial chairman needs your help. Contact: W. G. Scramstad, 14819 - 108th Ave., Surrey, B.C.; J. T. Boulton, No. 7 Parkdale Cres. N.W., Calgary, Alberta; Earl Freidin, 3411 Balfour Street, Saskatoon, Sask.; Winston Backman, 402 Medical Arts Building, Winnipeg; S. M. Green, Etobicoke Community Health Dept., Etobicoke, Ontario; Y. Dufresne, 143 Radisson, Trois Rivières, P.Q.; G. Jalbert, 55 Emmerson St., Edmunston, N.B.; George Clark, 6259 Quinpool Road, Halifax; G. B. Curtis, 95 LeMarchant Road, St. John's, Newfoundland.

For information about the national participation of the Canadian Dental Nurses and Assistants Association contact Elizabeth Purchase, 103 LeMarchant Road, St. John's, Newfoundland. For information about the Canadian Dental Hygienists' Association, contact Sherita Clark, Pickering College, Newmarket, Ontario. For national information, call the Bureau of Public Information, Canadian Dental Association, 234 St. George St., Toronto, Ontario, telephone (416) 962-3261.



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CANADA'S NEW SUPER-HERO: THE TOOTH FAIRY

The Dental Division of Etobicoke's Community Health Department is now the official headquarters of the Tooth Fairy Society of Canada.

The Society's identifying symbol, the Tooth Fairy, is a masked, caped, helmeted, super hero who rides a giant flying toothbrush and has the health department's logo emblazoned on his chest. His mission is to promote good dental health among children.

This innovative approach to the concept of the tooth fairy is the brainchild of Samuel M. Green, Director of Community Dentistry for the Borough. He feels that the period of time when young imaginative children begin to lose their baby teeth and learn about the tradition of the tooth fairy placing a shiny coin under their pillow provides an excellent opportunity for reinforcing good dental habits.

The membership fee is one cavity-

free baby tooth to be mailed, with the child's name and address, to the Tooth Fairy Society of Canada, Etobicoke Community Health Department. In return, the child will receive an official membership button and a certificate with the Society's tongue-twisting motto: "Simple, sneaky, sticky, sweet snacks surely can cause cavities quickly."

Dr. Green realizes that the symbol developed for this campaign is a radical departure from the traditional concept of the tooth fairy as a delicate female type. In fact, he admitted that the choice of a male symbol created a stir among female employees in his own department. However, the new super hero tooth fairy will probably be renamed in a special "name the fairy" contest to be held during Dental Health Month in February.

Nader group issues dental directory

Recent action taken by an American consumers' group could be read as a sign of the times for health professionals in North America.

In July, Ralph Nader's Public Citizen's Health Research Group issued an annotated directory of dentists in the District of Columbia. Entitled "Taking the Pain Out of Finding a Good Dentist," the directory is the first of 30 scheduled for release in cities across the United States. It gives information about individual dentist's training, fees and practices. Eighteen months ago this same group issued the first directory of physicians in Prince Georges, Maryland.

At a press conference called to introduce the dental directory, co-author Sidney M. Wolfe, MD, called attention to passages in the booklet that state: "this directory was compiled because we believe consumers have a right to information about health professionals who allegedly serve them — so they can seek out those who are more likely to give quality treatment and avoid those who are not."

ADA response

In response to this, the American Dental Association issued a memorandum on dentist directories to all state and local dental societies. The memorandum discusses how the directories may be introduced, how they are assembled, the ethical considerations of being listed in such a directory and how the dental profession might respond to their publication and distribution. The public relations aspects of dentist directories were considered by participants at the recent Conference on Dental Public Relations in Chicago and the results of the conference are included in the memorandum.

Some dental societies in the U.S. are considering publishing their own demographic directories to assist the public in choosing a dentist and one society is moving ahead with a pilot project.



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Canadian Dental Association.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on November 30, 1975:

<i>Guaranteed Fund</i>	\$12.179;
<i>Fixed Income Fund</i>	\$15.894;
<i>Common Stock Fund</i>	\$26.679.

Total assets (market value) of the plan were \$21,054,934.46.

The following portfolio purchases and sales occurred during the preceding month: purchased 5,143 units Classified Fund Fixed Income, 4,754 units Classified Fund Conventional Mortgages, 12,728 units Classified Fund foreign stock, \$100,000 Aluminum Company of Canada note, \$200,000 International Nickel Company of Canada note. Sold, 1,500 shares Aquitaine Company of Canada, \$200,000 Aluminum Company of Canada note, \$200,000 Consumers Gas Company note.

For further information write to CDA-sponsored Pension and Insurance Plans, 14 Madison Ave., Toronto, Ont. M5R 2S1.

Fluoridation in the Netherlands

By March, 1972, the Netherlands had 18 fluoridated water systems serving 3.8 million people. Most of these systems have now ceased to fluoridate due to a ruling of the High Court in June, 1973.

This ruling did not represent a stand against fluoridation. It was made because there was no legal basis to fluoridate under the present act in the Netherlands. The Ministry of Health has presented a new concept of the act for consideration by Parliament during 1976.

In memoriam

Harry Bateman

The Canadian Dental Association was saddened to learn of the death of Harry Robinson Bateman of Mount Dennis, Ontario, on November 15, 1975, at the age of 76.

A 1921 graduate of Toronto's Royal College of Dental Surgeons, Dr. Bateman practised in Mount Dennis until his retirement in 1969. He was a past president of the Ontario Dental Association and an active member of several civic groups in his community.

Michael Brick

It is with sadness that the Canadian Dental Association announces the death of Michael George Brick of Windsor on October 12, 1975, at the age of 82.

A 1918 graduate of Toronto's Royal College of Dental Surgeons, Dr. Brick was well known throughout the dental profession. He was an active member of the Essex County Dental Society for more than 50 years and was also a member of the Ontario Dental Association.

During his lifetime, Dr. Brick received several high awards in recognition of his service to his community.

Lorne Janes

It is with regret that the Canadian Dental Association announces the death of Lorne Vernon Janes of Hamilton on November 18, 1975, at the age of 84.

A 1914 graduate of the Chicago College of Dental Surgery, Dr. Janes served as a captain with the Royal Canadian Dental Corps during the First World War. He operated a practice in Edmonton until the outbreak of the Second World War when he joined the RCDC and served as a colonel in charge of the Dental Corps overseas.

Following his discharge in 1945, Dr. Janes was appointed Chief of the Division of Dental Health, Department of National Health and Welfare. In 1947 he returned to private practice in Hamilton, Ontario, until his retirement in 1966.

Dr. Janes was a past president of both the Edmonton and Alberta Dental Associations and an Honorary Fellow of the International College of Dentists.

DEATHS

Bancroft, Earl L. A. 64. Toronto. University of Toronto, 1935. 4-12-75. Survived by Kathleen (wife); Jay (son); Mrs. Judy Pipher and Mrs. Linda Andrews (daughters).

Bateman, Harry Robinson. 76. Toronto. Royal College of Dental Surgeons of Ontario, 1921. 15-11-75. Survived by Marian (wife).

Brick, Michael George. 82. Windsor. Royal College of Dental Surgeons of Ontario, 1918. 12-10-75. Survived by John, Paul, Frank, Malcolm (sons); Mrs. Mary Panabaker, Mrs. Margaret

Daly, Betty, Mrs. Jeanne Patterson and Mrs. Anne Farrell (daughters).

Janes, Lorne Vernon. 84. Hamilton. Chicago College of Dental Surgery, 1914. 18-11-75. Survived by Doris (wife); William and Robert (sons); and Mrs. Lorna Ryan (daughter). Associate member.

Kerr, Roy Douglas. 88. Toronto. Royal College of Dental Surgeons of Ontario, 1912. 28-11-75. Survived by Beatrice (wife), and Evelyn (daughter).

Lavoie, Francis Benoit. 54. Sudbury. University of Montreal, 1950. 25-11-75.

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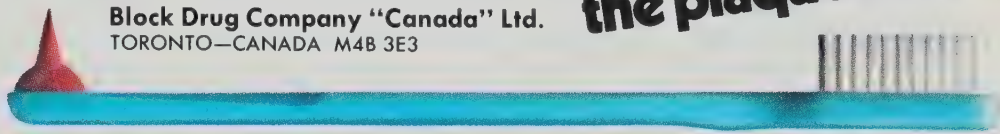
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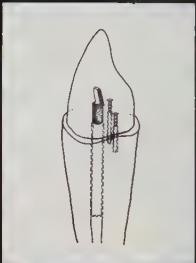
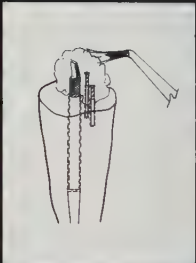
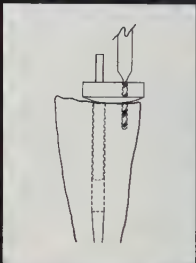
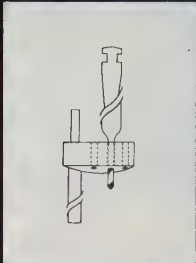
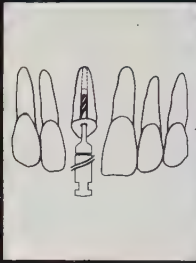
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Delegates to the 7th Annual Dental Students Conference held at Dalhousie University. Back row, left to right: William Hollingshead, Alberta; John Pate, CDA Student Governor, Western Ontario; Art Plunz, Saskatchewan; Pierre Légaré, Laval; Brian Mailman, Dalhousie; Gary Smith, Manitoba; John Gourley, McGill; Paul Shutsa, Toronto. Second row: Dr. Edwin Yen, chairman of CDA Student Membership Committee; Dr. Robert Gray, CDA Student Membership Committee; Warren Roberts, British Columbia; Dr. W. J. Dunn and Dr. T. A. Shapero, CDA Student Membership Committee; Edward Nabeta, Western Ontario. Front row: Dr. Ivan Hrabowsky, CDA Student Membership Committee; William Larder, chairman of CDSC 7, Dalhousie; Linda Teteruck, CDA Office of Student Affairs; Gilles Dubé, Montreal.

DENTAL STUDENTS' CONFERENCE HELD IN HALIFAX

A proposed student loan program, insurance and investment packages for graduates, and changes and activities within the Canadian Dental Association: these were the three key topics dealt with during the seventh Canadian Dental Students Conference held in Halifax, October 8-11.

William Larder of Dalhousie University chaired the Conference which was attended by representatives from all 10 Canadian dental schools. Delegates included: Warren Roberts, British Columbia; William Hollingshead, Alberta; Art Plunz, Saskatchewan; Gary Smith, Manitoba; Edward Nabeta, Western Ontario; Paul Shutsa, Toronto; John Gourley, McGill; Gilles Dubé, Montreal; Pierre Légaré, Laval; and Brian Mailman, Dalhousie.

Dalhousie University's Faculty of Dentistry hosted CDSC 7 with the opening night reception sponsored by the Nova Scotia Dental Association. As in the past, the Conference was funded by the Canadian Fund for Dental Education through a special grant from Colgate-Palmolive Limited and was organized by CDA's Office of Student Affairs. CDA was represented by its

Student Membership Committee: Ed Yen, chairman; W. J. Dunn; R. A. Gray; Ivan Hrabowsky; and Terry Shapero, consultant.

Changes within CDA

M. J. Crompton, CDA's president-elect, formally opened the business sessions with a discussion of the many changes occurring within the CDA and a description of the benefits Canadian dental students have gained through the work of the student conferences. As a member of the Board of Trustees of the Canadian Fund for Dental Education, Dr. Crompton also explained the function of the CFDE, the sources of its money and many of its activities in the areas of dental education and research.

Following a request by CFDE for information regarding the need for an undergraduate loan program, delegates reported on the need within their own provinces and discussed the development of such a program, particularly for mature students, and the possibility of CFDE acting as securing agent for students seeking loans. One of the resolutions of the Conference resulted

from this discussion: that CFDE be requested to investigate through its administration possible loan mechanisms for Canadian dental students.

N. J. Layton, vice-president of the National Dental Examining Board, was the next speaker on the agenda. He provided delegates with background information on the NDEB and a description of its function in the area of dental examination. As in previous years, delegates discussed various areas of concern with the NDEB, specifically with the amount and deadline of the certificate fee, and approved several resolutions expressing this concern.

Recruitment campaigns

Dr. Yen opened the Thursday afternoon business session with a report on the activities of the CDA Student Membership Committee. On the subject of recruitment campaigns, he informed delegates that, during the past six years, CDA student membership has increased steadily with the 1974-75 figures representing 57.2 per cent of the total student population. The delegates from the Montreal and Laval univer-

sities commented on the need for all recruitment materials forwarded to the French-speaking dental school students to be printed in the French language. A resolution was passed to this effect.

Terry Shapero, Canadian Coordinator of the International Association of Dental Students, addressed delegates on the various activities and functions of the IADS. Discussion revolved around the need for communication between the international organization and Canadian dental schools and the effective promotion of IADS activities within each school.

Third party payments

A three-hour panel discussion on the second day of the Conference was devoted to the subject of "Third Party Payments for Dental Care." Dental staff and students from Dalhousie were invited to join CDSC delegates for this session which featured as panelists: E. F. Dexter, president of the Nova Scotia Dental Services Corporation; F. C. Fennell, Administrator of the Nova Scotia Dental Care Plan; and

H. J. Hann, professor of Community Dentistry at Dalhousie.

Student Governor John Pate presented a detailed report on the activities of the CDA Board of Governors at their two meetings of March and August, 1975. He explained the recommendations of the Task Force and the action taken on these recommendations during the Board's annual meeting in August. Following Mr. Pate's report on reorganization within the CDA, Dr. Dunn elaborated on the proposal for the establishment of a Professional Council and its possible effect on the process of accreditation in the dental schools. Delegates later approved a resolution recording their opposition to the creation of a Professional Council and urging retention of the present arrangements for the accreditation program under the jurisdiction of the Council on Education.

Insurance and investments

Mr. Pate also outlined the activities of CDA's Council on Insurance and Investment. He informed delegates

that, through the co-operative efforts of the Council on Insurance and Investment, and CDSPI, a graduate insurance package had been developed and was being offered to all graduating dentists in Canada. The eligibility requirements of this package then came under discussion and delegates approved the following resolution: "That CDSC 7 request the Student Membership Committee to recommend to the Council on Insurance and Investment that the free graduate insurance package be provided only to those new graduates who have demonstrated continuing membership in the CDA."

William Hollingshead of the University of Alberta was elected chairman of the 1976 Conference to be held in Edmonton. Other officers were: John Gourley of McGill, representative to the CDA Board of Governors; Warren Roberts of the University of British Columbia, CDSC representative to the CDA's Council on Education; and Art Plunz of the University of Saskatchewan, CDSC representative to the forthcoming Teaching Conference.

NEW DENTAL RESEARCH PROJECT FOR CHILDREN FUNDED BY CFDE

J. W. Neilson, Chairman of the Board of the Canadian Fund for Dental Education, recently announced that an award of \$18,000, made possible by support from the Hospital for Sick Children Foundation, will be used to finance the first year of a study of the properties of normal and healing mandibular bone.

Dr. Neilson explained: "The purpose of the study is to contribute to an improved clinical treatment procedure following fracture or osteotomy of the jaws. It is anticipated that the results of this research will be of immediate clinical benefit in the treatment of con-

genital malformations and mandibular fractures. It has been estimated that at least 500 such operations are performed each year in Toronto alone. This study is also basic to the use of mandibular implants."

The research will be conducted at the University of Toronto's Faculty of Dentistry under the direction of Dr. D. C. Smith, Professor of Dental Materials Science, with Dr. D. Robertson serving as research associate. Work will begin immediately and, according to Dr. Neilson, is expected to be completed in about three years.

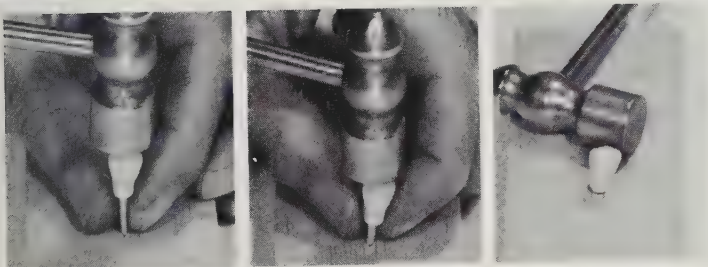
Quebec Dental Surgeons Association

The Board of Governors of the Quebec Dental Surgeons Association recently announced the election of Clyde Covit as chairman of the Board. Dr. Covit was formerly president of the Association. In addition, Claude Chicoine, executive director of the QDSA, was named president.

Other members elected to executive offices during the October meeting are: Jean Laporte, first vice-president; Mario Bealieu, second vice-president; Gaétan Bouchard, treasurer; and, Bernard Bélanger and Yves Tellier, advisers.



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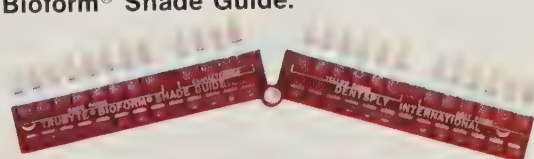


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NDEB EVALUATES FOUR YEARS' EXPERIENCE

D. B. Proctor, DDS
Winnipeg

The National Dental Examining Board has, since 1971, been conducting an annual examination for dentists trained in countries other than Canada and the United States. This examination was brought about by the request to the NDEB by several provinces, particularly Ontario and Quebec. Ontario and Quebec had, for several years, conducted their own examination for foreign trained dentists. Following consultation with the licensing boards of all provinces, it was agreed they would accept an NDEB certificate if an adequate exam was carried out. One of the advantages of having the NDEB conduct such an examination was that it would take the exam out of the political arena — a problem which has occurred in the past in several areas.

The first examination was modelled along the lines of both the Ontario and Quebec exams.

The exam presently consists of three sections: written, pre-clinical and clinical. The exams are sequential, namely, a candidate must pass the written before going to the pre-clinical.

(A)1. The written examination covers the following subjects:

- (1) Oral diagnosis, radiology and treatment planning.
- (2) Operative dentistry, dental anatomy and fixed partial prosthodontics.
- (3) Prosthodontics.
- (4) Orthodontics, pedodontics, preventive and public health dentistry.

(5) Oral surgery, anaesthesia and endodontics.

(6) Oral medicine, clinical therapeutics and periodontics.

(B)1. The pre-clinical exam consists of preparations only on articulated ivory teeth of:

- (1) An upper permanent central incisor for a porcelain jacket crown.
- (2) An upper permanent cuspid for a $\frac{3}{4}$ cast gold crown.
- (3) An upper permanent first molar for a $\frac{3}{4}$ cast gold crown (on the same side as the cuspid).
- (4) On an upper first bicuspid tooth prepare and place a M.O.D. amalgam restoration.
- (5) An M.O.D. cavity preparation for gold inlay on a first lower molar including the wax up and casting of the inlay.

(B)2. Radiographic interpretation (1½ hours).

(B)3. Diagnosis and treatment planning for a partially edentulous patient from x-rays and study models (1½ hours). Three days are allotted for the pre-clinical examination.

(C)3. *Clinical examination* — This examination comprises the following:

- (1) Preparation, placement and finishing of an amalgam comprising no less than three surfaces on a bicuspid or molar.
- (2) Preparation, placement and finishing of a labial or buccal Class 5 cavity on an anterior or bicuspid

tooth using gold foil or composite, or simple resin material.

- (3) Fabrication and finishing of a cast gold restoration comprising no less than three surfaces but not a full crown on a bicuspid or molar.
- (4) Construction of complete upper and lower dentures for a patient up to and including the try-in stage.

It should be noted that these exams are aimed at the level of a Canadian graduate of approximately five years.

The only stipulation required of a candidate for this examination is that he be a graduate of a university-based dental school, preferably one listed in the World Health Organization Directory of Dental Schools. In latter years, this directory has not been kept up-to-date and we are essentially dropping this as one of our requirements. The one other consideration is that the candidate must have a good knowledge of either English or French.

The clinical examiners are chosen by the provincial licensing bodies (not by the National Dental Examining Board) and the chief examiner is appointed by the NDEB. At the present time, the examiners are distributed as follows: one each for British Columbia and Alberta; a shared examiner between Manitoba and Saskatchewan, and one for the Atlantic provinces. Ontario and Quebec have three examiners each. An attempt is made, as much as possible, to have the examiners general practitioners with some university experience in marking and grading.

Year	Foreign-trained dentists residing in Canada										Foreign trained dentists residing in U.S.A.	Foreign trained dentists in other countries	U.S.A. grads. residing in U.S.A.	Canadian grads. residing in Canada
	B.C.	Alta.	Sask.	Man.	Ont.	Que.	N.B.	N.S.	P.E.I.	Nfld.				
1971	8	5	3	5	49	20	—	4	—	4	15	166	69	20
1972	5	2	1	3	33	24	1	2	—	—	13	179	72	20
1973	5	2	2	3	34	14	—	1	—	4	23	223	76	18
1974	11	4	2	5	69	26	—	—	—	1	22	306	99	15
TOTALS†	29	13	8	16	185	84	1	7	—	9	73	874	316	73

*The data on the above chart concern enquiries received by the NDEB office only. Brochures are sent to various bodies, i.e. provincial registrars, deans of dental faculties, Canadian Dental Association and immigration centres (worldwide).

†Non-practising and not licensed foreign-trained dentists residing in Canada — 352.

The exam, to date, has been held alternately in Toronto and Montreal through the courtesy of the University of Toronto, McGill University and the University of Montreal. The 1976 exam is tentatively scheduled for the University of Western Ontario.

Table 1 gives some idea of the reason behind the need for an examination of this nature. This represents only enquiries, not those who actually took the examination. The last two columns, showing the number of Canadian and U.S. enquiries, involves those who would be required to take only the written portion of the exam.

Table 2 shows the results of the written exams for graduates of Canadian and U.S.A. approved schools. Canadian graduates writing these exams represent those practitioners who graduated from Canadian schools but did not at graduation take out either a Dominion Dental Council certificate or a National Dental Examining Board certificate.

Table 3 gives the statistics concerning the foreign dentists who have taken the three phases of the examination. These figures will not necessarily balance out, as supplemental privileges are allowed in all three phases of the exam and some years there may be a number of candidates writing only the clinical, or only the pre-clinical and clinical.

Approved schools*: Canadian and U.S.A. graduates
(Examination data, 1971-1974)

Table 2

Year	U.S. graduates			Canadian graduates		
	No. of candidates	Successful	%	No. of candidates	Successful	%
1971	22	18	82	12	4	33
1972	40	36	90	11	8	73
1973	30	25	83	12	10	83
1974	44	40	91	9	9	100
TOTALS	133	116	87	44	32	73

*Candidates of approved schools are required to take a written examination.

Unapproved schools*: Foreign dentists

Table 3

Year	Written†			Preclinical†			Clinical†		
	No. of candidates	Successful	%	No. of candidates	Successful	%	No. of candidates	Successful	%
1971	41	22	54	22	20	91	20	4	20
1972	44	26	59	26	18	70	27	9	30
1973	49	22	45	23	18	78	24	8	30
1974	45	27	60	27	23	85	37	16	43
TOTALS	179	97	54	98	79	81	108	37	34

*Candidates of unapproved schools are required to take a comprehensive examination, i.e. written, preclinical and clinical.

†Due to supplementals, there may be discrepancies in the number of candidates shown.

Discussion

While the numbers generally are too small to draw any hard and fast conclusions, some of the more obvious things can be seen. As would be expected, with the exception of one year, Canadian and U.S. graduates were far more

successful in the written exams than were the foreign dentists. The fact that there are a relatively high number of failures also is not particularly surprising. The standard set in these exams while not being restrictive, is reasonably high. This I feel is valid on two grounds: (1) the candidate gets a certificate enabling him to practise in

any province in Canada, and, (2) in order to keep the certificate valid in all provinces of Canada, the standards must be kept at a level that is acceptable to these provinces. To date we have examined candidates from 33 different countries. In most cases, insufficient candidates have applied to make any sweeping statements as to their effectiveness in passing our examinations. Candidates are informed prior to the examination if the past record from their country has not been too successful.

There are still a number of problems to be ironed out in the presenting of such examinations, particularly the clinical exam. One of the major difficulties faced by candidates, particularly those who arrive from overseas for the examination only, is the problem of securing patients on whom to do their clinical work. To date, and with some help, they have usually been successful in presenting with patients reasonably suitable to carry out the required procedures. However, in many cases, they are not the best patients either for the candidate or for the examiner and efforts are being made to try to arrange a supply of patients for candidates if they so desire. The option of providing their own patients would still be open. Patients have been brought from Vancouver and even from overseas at the candidate's expense, in order to ensure having a satisfactory patient.

Another feeling that comes out of these examinations is that here is a source of dentists, who, with several months of re-training could be brought up to a level where they could easily qualify. At present, at least two faculties of dentistry are considering putting on such courses.

In closing, I would like to pay particular tribute to James T. Purves of Toronto and Roger Coulombe of Lachine, Quebec, who were instrumental in starting these examinations and were the first chief examiners for their respective areas.

Dr. Proctor is past president of the National Dental Examining Board of Canada.

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*Reference available on request.

LES DENTISTES DE COLOMBIE-BRITANNIQUE SE PREOCCUPENT DU ROLE QU'ILS SERONT APPELES A JOUER A L' EGARD DU REGIME DE SOINS DENTAIRES DES ENFANTS

Les dentistes de Colombie-Britannique se préoccupent du rôle que joueront les praticiens à l'exercice privé à l'égard de tout régime futur de soins dentaires des enfants. Ces inquiétudes ont été provoquées par un rapport récent soumis au gouvernement par un Comité spécial de recherches, chargé de l'étude d'un régime dentaire global pour les enfants de la province. Le comité, présidé par M. Robert G. Evans, économiste à l'université de Colombie-Britannique, a été constitué par le gouvernement et le Collège des chirurgiens-dentistes de Colombie-Britannique en 1973.

Le rapport analyse quatre régimes de soins dentaires en termes de main-d'oeuvre, de coûts, d'application et de distribution géographique des services. Il s'agit: d'un programme qui fait appel aux praticiens privés et qui est complété par des programmes éducatifs au niveau scolaire; d'une combinaison de praticiens privés et publics; d'une série de cliniques dentaires publiques pour les enfants situées au sein de collectivités dans toute la province; et d'une série de cliniques dentaires pour les enfants situées dans les écoles. Le rapport souligne que les cliniques mobiles en camionnette, se déplaçant d'une école publique à l'autre, constitueraient la méthode la moins coûteuse d'offrir les soins nécessaires. Il précise aussi que l'emploi de praticiens privés constituerait la méthode la plus coûteuse. On indique que le Ministre de la santé, M. Dennis Cocke, serait en faveur d'un régime du type "infirmière dentaire"

comme on le pratique en Saskatchewan.

Le Collège de Colombie-Britannique s'est opposé à un nombre de déclarations faites et à certains chiffres utilisés dans le rapport pour analyser les coûts des divers programmes. Cet organisme énumère huit points fondamentaux de désaccord avec le rapport:

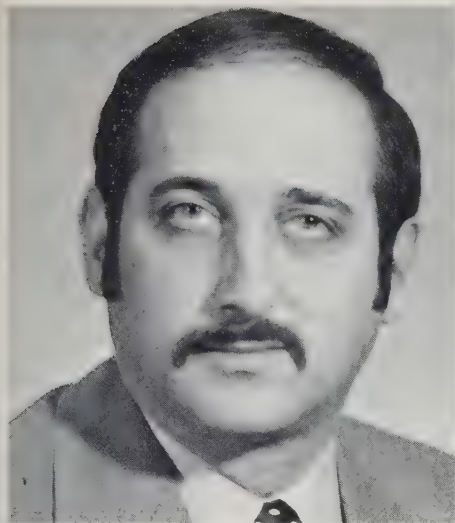
- Il n'examine pas toutes les possibilités déjà existantes, c'est-à-dire des changements positifs dans la structure de la pratique privée, une plus grande utilisation des auxiliaires, etc.
- Il suppose que les services publics sont équivalents à la qualité des services offerts par la pratique privée.
- Il suppose qu'il y aura peu de problèmes dans la répartition géographique des employés salariés au service du gouvernement.
- Il estime que le coût des programmes mis sur pied pour le service public semble être artificiellement réduit, si l'on se base sur des évaluations simulées par ordinateur.
- Il néglige de se prononcer sur le coût de l'introduction d'un programme de rechange et de l'impact causé par la syndicalisation des employés du gouvernement sur le prix des solutions de rechange offertes par la fonction publique.
- Il ne reconnaît pas le fait que de nombreux parents pourraient continuer à envoyer leurs enfants chez des dentistes privés. C'est pourquoi les tarifs de recours aux programmes scolaires sont

trop élevés, et par contre les coûts unitaires sont trop bas.

- Il ne reconnaît pas le fait que l'infirmière dentaire provoque une dépense inutile parce qu'elle crée une main-d'oeuvre superflue.
- Il ne reconnaît pas de manière significative que le fait d'éliminer la pratique privée pour les enfants rendrait la pratique privée non rentable dans de nombreuses régions rurales et aboutirait à l'élimination des dentistes dans ces régions.

Le Collège a établi une cinquième solution de rechange au système de l'assurance-maladie dentaire qui est actuellement examinée par le gouvernement. Des pourparlers entre M. Robert N. Hicks, président du Collège et le ministre de la santé publique ont abouti à une invitation de la part du gouvernement au Collège à soumettre sa proposition sous forme d'un projet de contrat ou d'entente.

En demandant au Collège de soumettre son projet d'entente, le ministre a souligné que ce document doit spécifier la volonté des membres du Collège d'assurer les services cliniques nécessaires stipulés dans le programme pour les enfants, maintenant et pour l'avenir, ainsi que les conditions et les dispositions régissant la disponibilité éventuelle de ces services. Ces dispositions doivent démontrer sans équivoque que les coûts se rapprochent de ceux des autres systèmes et assurent un rayonnement géographique à travers toute la province.



Clyde Covit



Claude Chicoine

ASSOCIATION DES CHIRURGIENS-DENTISTES DU QUEBEC

Lors d'une récente assemblée du Conseil d'administration, tenue le 18 octobre 1975, l'Association des Chirurgiens-dentistes du Québec a mis en application ses nouvelles structures, et à cette occasion a procédé à la nomination du docteur Clyde Covit au poste de président du Conseil d'ad-

ministration et à la nomination du docteur Claude Chicoine au poste de président-directeur général. Les autres membres de l'Exécutif sont les docteurs Jean Laporte, 1er vice-président, Mario Beaulieu, 2e vice-président, Gaétan Bouchard, trésorier, Bernard Bélanger et Yves Tellier, conseillers.

L'ACAD PROJETTE UNE CAMPAGNE DE RECRUTEMENT

C'est au cours de l'année prochaine que l'Association canadienne des infirmières et assistantes dentaires lancera sa campagne de recrutement. Cette décision a été prise lors de l'assemblée annuelle 1975 de l'Association, tenue conjointement avec le congrès national de l'ADC à St. Jean, Terre-Neuve.

L'Association prévoit également une hausse des cotisations des membres ainsi qu'une augmentation de la subvention accordée à son Journal.

Lors de l'assemblée, l'ACIAD a également annoncé les noms des gagnants des prix pour 1975. Le prix de mérite Marion Edwards a été décerné à l'Association d'Edmonton; le prix de l'assistante loyale Mary G. Fullerton, à Frieda Stroehleim de Fort Saskatchewan, Alberta; le prix de clinique sur table Dr Henry Garvin à Vicki Kranen-

berg et Faye Lassey d'Edmonton; et le prix d'accréditation Elaine Wesley a été remporté par Ellen Maitland de Colombie-Britannique.

Les membres suivants ont été nommés à l'exécutif de l'ACIAD pour le mandat 1975-76: président, Kerris Franklin d'Edmonton; premier vice-président: Jean Phillips de Hudson Heights, Québec; deuxième vice-président: Jennifer Berry de Nanaimo, C.B.; secrétaire: Barbara Peterson de Calgary; trésorière et présidente du conseil d'accréditation: Elaine Wesley de Lethbridge, Alberta; relationniste et ancienne présidente: Elizabeth Purchase de St. Jean, Terre-Neuve; rédactrice du Journal: Jane Faulafer de Vancouver; et présidente du comité des propositions: Trudi Coates de Winnipeg.

Dr Neilson a été nommé président du FCED

Lors de la dernière réunion du Bureau des gouverneurs de l'Association dentaire canadienne, le Dr John W. Neilson a été nommé président du Fonds canadien pour l'éducation dentaire. Il succède à M. M. E. (Bud) Bower, qui a donné sa démission après avoir occupé la présidence pendant cinq ans.

Le Dr Neilson, doyen de l'Ecole dentaire de l'Université du Manitoba a été nommé fiduciaire en 1971 et il est devenu vice-président du Conseil en 1974. Il avait servi pendant trois ans à partir de 1967, à titre de président du comité consultatif du FCED sur la sélection des bénéficiaires des bourses.

En conformité avec la politique du Fonds en ce qui concerne la nomination de trois fiduciaires chaque année, le Dr Henri Brouillet, M. Stanley O. Tebbutt et M. Alex S. Currie, ont tous été nommés pour un mandat de trois ans.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 30 Novembre 1975:

<i>Fonds avec garantie</i>	\$12.179;
<i>Fonds à revenu fixe</i>	\$15.894;
<i>Fonds d'actions ordinaires</i>	\$26.679.

L'avoir total (valeur marchande) du régime se montait à \$21,054,934.46.

Au cours du mois précédent, les transactions ont été les suivantes: achat, 5,143 units Classified Fund Fixed Income, 4,754 units Classified Fund Conventional Mortgages, 12,728 units Classified Fund foreign stock, \$100,000 Aluminum Company of Canada note, \$200,000 International Nickel Company of Canada note. Vente, 1,500 shares Aquitaine Company of Canada, \$200,000 Aluminum Company of Canada note, \$200,000 Consumers Gas Company note.

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Special Feature: PART III

HOW DOES THE PROFESSIONAL COPE WITH INFLATION?

The Journal of the Canadian Dental Association is pleased to have been given permission to present excerpts from the Montreal Dental Club Seminar, "The Professional and Inflation," held in Montreal, September 19. The panel was moderated by David Taffler, editor of the Financial Times of Canada. Panelists were: N. S. Takacs, senior vice-president, Greenshields Incorporated, Montreal; R. G. Lafferty, investment counsellor, Lafferty, Harwood and Partners Ltd., Montreal; Dr. Morton Shulman, investor, author and former MPP High Park, Toronto, and D. J. Johnston, lecturer, author and tax lawyer with Johnston, Heenan and Blaikie, Montreal. Mr. Takacs, Mr. Lafferty and Dr. Shulman were featured in Parts I and II in the November and December issues. Mr. Johnston is published in Part III.

A tax lawyer's viewpoint

Donald J. Johnston
Montreal

If we are to take advantage of any of the types of investments recommended by the previous speakers on this panel, we must first have savings. Now the question is, how does one generate savings given the kind of tax structure we have in this country today?

I don't think many of us realize what a greedy and ubiquitous partner the government really is. We tend to forget that, apart from income taxes, we have a multitude of other taxes, some of which are quite difficult to ascertain because they are indirect. In addition to our direct federal, provincial, and local taxes, we have real and personal property taxes, water and fuel taxes, customs duties, excise taxes, a variety of health insurance premiums, gift taxes, licences, permits, etc. All of these government levies represent taxation in one form or another. This is how the government, at all levels in Canada, has been able to increase its collective spending from approximately 14 billion dollars in 1963 to about 45 billion in 1973 — an extraordinary increase over one decade.

If we look only at the federal revenue structure we find that, during the 1974-75 fiscal year, personal income tax in Canada accounted for 40.2 per cent of total budgetary revenue, approximately 10 billion dollars. The greatest increase in government

revenue over the last decade has been in the area of personal income tax. In fact, the figures I have indicated that income tax, as a source of revenue, increased 235 per cent from 1963 to 1974.

I will try to relate my comments to the direct relationship between inflation and taxation and will attempt to point out the extent to which you can use legitimate tax avoidance devices to minimize the impact of taxation on your pocketbook. Of course the first obvious area in which inflation and taxation are directly related is the one I have just referred to — increased government spending. This increased spending, and the corresponding revenue requirement, can only be met by increased taxation at all levels and this taxation, in turn, has many inflationary forces inherent in it.

Mr. Johnston then explained how an increased taxation which affects the profitability of a commercial enterprise, whether it is a corporation or a professional practice, is immediately passed on in higher prices to the consumers of the goods or services provided by these enterprises. Similarly, he said, increased personal taxation gives rise to an immediate demand for higher wages.

Basically our tax system has not responded in any meaningful way to the aberrations created by our recent experience with inflation. An attempt has been made at the federal level to somewhat soften the impact of inflation through an indexation system established in 1974, but this is limited to the basic personal exemption, the marital exemption, dependent exemptions and the exemptions allowed the aged, blind and disabled. Although this federal indexation system is modest indeed, no indexation system whatever has been introduced in Quebec and, accordingly, residents of the province are likely to be placed at a substantial disadvantage as compared to Canadians in other provinces.

In my view, even this partial show of concern at the federal level is grossly inadequate as a means of coping with the combined effects of inflation and taxation. I refer particularly to the taxation of capital gains. I find it appalling to think that with an inflation rate of, say, 10 per cent per annum (a very conservative estimate these days) the value of a capital asset could double every 7.2 years. This gain, solely the result of inflation, would give rise to a tax of 32 per cent of the gain assuming a 64 per cent marginal rate. (The top marginal rate for

residents of Quebec was 63.72 per cent in 1974.) It stands to reason that, without indexation of capital gains, we are going to see a rapid transfer of capital from the private sector to the public sector. In time, most of the savings of Canadians could be wiped out.

However, despite the fact that our governments have done little so far, I remain optimistic that they will respond to these very obvious problems and will create an environment in which savings and investments by individual Canadians will be encouraged. In its Eleventh Annual Review, the Economic Council of Canada came out with some very strong recommendations to the federal government to provide further incentives to encourage personal savings and to tailor its fiscal policies to allow such savings to be made possible.

The obvious way for you, as professionals, to protect your income is to pass on your increased costs or increased taxation to your patients. However, there may be other ways to decrease your taxes. In recent years, the revenue authorities in this country have adopted what I would call an aggressive stance toward what we have traditionally called tax avoidance. In fact, the Department of National Revenue has an official Tax Avoidance Division, the purpose of which is to closely scrutinize the sophisticated tax avoidance schemes in which a number of Canadians indulge. However, in the past, a distinction was made between the terms "avoidance" and "fraudulent evasion." This distinction is still valid and is indicated in one of the classical endorsements which is often referred to even today before the tribunals. In this famous English decision of 1929, the court declared that: "No man in this country is under the smallest obligation, moral or other, so to arrange his legal relations to his business and to his property as to enable the Inland Revenue to put the largest possible shovel into his stores. The Inland Revenue is not slow, and quite rightly, to take every advantage which is open to it out of the taxing statutes for the purpose of depleting the taxpayer's pocket and the taxpayer is, in like manner, entitled to be astute to prevent, so far as he honestly can, the depletion of his means by the Revenue." In view of this, I think you can rest assured there is no moral or legal censure in this country attached to indulging in tax avoidance schemes, euphemistically referred to as tax planning.

Most tax avoidance techniques today have one principal objective and that is to defer a tax liability. The Registered Retirement Savings Plan is basically a technique of deferring a tax liability until such time as you find yourself in a lower tax bracket. Inflation has now added a dimension to the concept of tax deferment which we did not have in the past. For example, if a one-dollar tax liability is deferred for seven

years, at an annual inflation rate of 10 per cent, it becomes a 50 cent liability. And, of course, if that same dollar has been put to use as income in the interim a substantial benefit can be realized. A word of warning: a great deal of care must be taken in the selection of tax deferment vehicles offered to the public.

One technique gaining favor among many professionals in Canada is the use of management or service companies in their practices. The tax advantage of using a corporation for certain kinds of business activity is not only that of obtaining a deferment but, in some cases, an absolute tax saving. For example, a Canadian controlled private corporation is entitled to a small business deduction on the first \$100,000 of active business income. The effect of the deduction is to reduce the tax rate to 25 per cent on active business income up to the \$100,000 limit. Let us assume that such a corporation has a shareholder with a marginal personal rate of tax of approximately 64 per cent. In this instance the company will pay a tax of \$25.00 on \$100.00 of taxable income, leaving \$75.00 to be paid out as a dividend. The dividend will be grossed up by one-third in the calculation of the dividend tax credit thereby requiring the shareholder to include \$100.00 in income. However, the \$64.00 of tax which he would otherwise have to pay will be reduced by a dividend tax credit of 31.25 per cent of the grossed up dividend, resulting in a net tax in the shareholder's hand of \$32.75 and a tax in the company's hand of \$25.00 for a total tax bill of \$57.75 as opposed to the tax liability of \$64.00 had the funds been received directly. In addition, if no dividend is declared, the immediate tax impact is only \$25.00 and the funds can be used in the corporation to generate further income or to expand the company's activities. However, there are limitations to the use of these corporations.

Mr. Johnston noted that the Department of National Revenue recognizes the existence of these corporations and has issued an interpretation bulletin, IT189 of November, 1974, on the subject. This bulletin deals with two specific types of corporations: the incorporated professional practice, where the actual profession is conducted in the corporate form; and the service corporation or management company. He explained that a number of professional associations in Canada, through their internal by-laws and the acts which govern them, prevent their members from incorporating their practices. This means that doctors, dentists, lawyers, etc. in many jurisdictions are not able to realize the tax advantages of their counterparts in other professions. In addition, the National Revenue Department takes the view in its interpretation bulletin that where the law does

not permit the incorporation of a professional practice it will not be recognized for tax purposes.

For professionals who are not allowed to incorporate their practices, the interpretation bulletin deals comprehensively with the second alternative. Paragraph eight is of particular interest:

"Professional individuals or other persons may be provided with premises or services by a corporation controlled by one or more particular professionals or their relatives. The corporation should remunerate appropriately its employees who are the particular professionals or relatives, and charge its customers (the practice of the particular professionals and perhaps other persons) an appropriate total amount for the premises and services provided, which would include a reasonable profit to the corporation. The deduction of the amount paid to the corporation by the practice of the particular professionals is acceptable provided that the charges for the premises and services are reasonable in relation to the amount someone else would pay in a free market for the same facility. The corporation is taxable on its income arising from the performance of its assigned function."

In fact, we have a favorable decision in the case of service companies for dentists in *Edwards v. M.N.R.*, a 1969 decision of the Tax Appeal Board. A corporation entirely owned by Dr. Edward's wife was incorporated to assume the management of her husband's dental practice. The company was paid a management fee and also received a mark-up on goods which were sold to Dr. Edward's practice. However, the firm also sold dental supplies to third parties. The Department of National Revenue was unsuccessful in attacking this arrangement.

Nevertheless, if any of you are to utilize such a service company, care must be given to give it a degree of activity so as to permit it to take advantage of the small business deduction provided for in Section 125(1) of the Income Tax Act. A recent decision of the Tax Review Board rejected the claim for a small business deduction in the case of *D.S.B.K. Management Ltd. v. M.N.R.* In that case, a company was incorporated to provide management services to a firm of chartered accountants whose senior partners were, in turn, shareholders of the company. The Board found that the financial statements of the company indicated little economic activity and it concluded that the small business deduction would not be allowed. In such a case, the interposition of a management company serves no useful purpose and in fact could create a greater ultimate tax liability than would be the case if it did not exist. Therefore, I suggest to you that, before incorporating a management or

service company, you give careful consideration to the activities which will be carried on and structure the company so that it will be in a position to actively engage in a full range of bona fide management operations. Unfortunately, the Interpretation Bulletin IT-189 is silent on the question of the small business deduction and when it will be made available to service corporations of the kind I have been discussing.

Turning to the subject of tax shelters, Mr. Johnston cautioned that the advantages of many of them were illusory. He warned that even where the immediate tax consequences of a particular shelter are known, close attention must be paid to the merits of the underlying investment itself. Using the example of investments in motion picture films, Mr. Johnston explained that several cases involving this arrangement have been attacked by the Revenue Department and that he was not very optimistic that the final decisions would turn out favorably for the investor. Tax shelters generally are not regarded favorably by most of the judges on the Tax Review Board in Federal Court.

All too often people tend to invest in a tax shelter, whether it is a motion picture film, an aircraft lease or boxcars, without really giving enough thought to the viability of the asset as a commercial venture, a legitimate business venture. We must realize there are difficulties inherent in many types of tax shelters. One example is an aircraft lease. A detailed analysis of most aircraft leasing arrangements indicates that they can encounter serious difficulty several years down the road when there is no depreciation available to shelter the rental income from the aircraft, but a substantial mortgage still exists. I do not want to give the impression that none of these arrangements are attractive; many of them are. I just want to emphasize the need for careful evaluation. Unfortunately, many investors are seduced by the apparent windfall to be received in the initial year without regard for their long term financial position.

Rental properties are, I would think, a more attractive tax shelter to many of you, despite Dr. Shulman's admonition (see Dec., Vol. 41, No. 12, p.644) about rent controls which admittedly pose a serious problem. However, in terms of tax considerations, residential construction is very attractive because of the amendments to the Income Tax Act regulations implemented in November 1974. In order to stimulate residential construction, the government allows you to apply losses on multiple residential properties constructed between November 19, 1974, and December 31, 1975 against your other sources of income. In other words, they have provided a tax shelter.

In the case of frame construction, the depreciation rate can be as high as 10 per

cent. Most apartment buildings however would be subject to the 5 per cent depreciation rate. Nevertheless, this kind of vehicle provides a continuing tax shelter which will be available for many years and will probably enjoy a substantial residual value some 20 years hence.

Films of course are highly speculative with normally no residual value of interest and most aircraft leases provide for a favorable option to purchase by the lessee. Hence the inflationary content of the residual value accrues to the carrier and not to the owner. This normally is not the case in real estate investments and the residual value by itself can prove to be a very attractive feature to an investor as a hedge against inflation.

Estate planning was the next topic discussed by Mr. Johnston. He explained that estate planning techniques ranged from the simple spousal trust, whereby your assets are left to your spouse and are not subject to capital gains tax upon your death, to the much more complex structures involving holding companies to freeze the value of your assets at current market values.

The estate freeze can be used in any case where a person has growth assets which are likely to increase substantially in value. Techniques are available to ensure their transfer to a corporation without any immediate tax consequences and by a proper capitalization and distribution of stock, the future growth in value of those assets can be transmitted to intended beneficiaries. Where income producing assets are transferred to such a corporation it may also be possible to achieve a certain amount of income splitting. These techniques are available to everyone and are of no particular significance to professionals, as opposed to others, but they are indeed a sensible means of reducing the impact of succession duties and capital gains tax which would otherwise be exigible upon death. Real estate, art objects, securities, paintings, etc. are often the subject of such estate freezes.

Estate planning has other purposes besides effecting an estate freeze. Frequently a gifting program is designed so that not only is an estate frozen at a given value but it is also reduced in future years by gifts to intended beneficiaries. Sometimes the consolidation of assets in corporations is used as a technique to avoid dealing with a number of taxing jurisdictions on death. In addition to tax considerations, there are a number of practical considerations involved in all estate planning, such as the provision of funds to meet taxes and the means of providing revenue to surviving dependents. However, returning to our central theme, it is apparent that estate planning can reduce the impact of inflation by effectively rolling over assets from one generation to another

without the payment of capital gains tax or succession duties.

It is obvious then that the deferment of tax liabilities provides an effective means of conserving values during an inflationary period. I would like to discuss briefly several other areas of tax deferment which may be of interest.

The taxation of gains realized upon the disposition of securities makes those fortunate few who have such gains hesitant to dispose of them thereby triggering a tax. Recent and current market conditions have provided many people with losses available to shelter such gains. Nevertheless, if and when a strong stock market again exists, it would be useful to have some device whereby taxation of such gains could be deferred. One technique is to invest in world securities markets through a bona fide offshore non-resident mutual fund. A number of these funds exist which invest in securities markets all over the world and by and large they are not subject to taxation in any country from the gains realized. The Canadian investing in such a fund would only become liable for capital gains tax upon the redemption or sale of his interests therein. However, in the case of a domestic mutual fund, the gains will either be allocated to him on an annual basis if the fund is a trust or the fund itself will be subject to tax.

As you are no doubt aware, your home is also a tax shelter. Any gain realized on the sale of a principal residence is non-taxable. In addition, it is possible for a husband and wife each to have principal residence, normally a city home and a country home.

Borrowing on capital assets is another technique of receiving the use of funds without triggering a capital gain. If the loan is made to acquire income producing property then the interest on that loan will also be deductible for tax purposes.

Mr. Johnston then described many of the anomalies and inequities in Canada's present tax system. He urged professional associations to call upon the government of this country for more effective tax reform.

Too many professionals today are concerned with technicalities of our tax law than they are with getting down to some of the basic problems and really trying to reform the system and make it sensible. Let's face it, if a more fair and equitable income tax system existed in Canada, then the kind of tax avoidance planning and the expense that all of you go to with your auditors and professional advisers could be dispensed with. The system shouldn't be a mystery to most of the people in the country. People shouldn't have to employ expensive tax counsel just to find out what the law is. We have enough real problems in this country without having to spend millions of dollars on artificial problems created by our tax legislators and bureaucrats.



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Observe care in use of codeine, although tolerance and addiction are rare. Give codeine with caution to patients with severe respiratory depression. Its depressant effect may be enhanced by concurrent administration of sedatives and tranquilizers.

ADVERSE REACTIONS: Acetylsalicylic acid: *Gastrointestinal:* dyspepsia, heartburn, nausea, vomiting, diarrhea, gastrointestinal ulceration and bleeding. *Ear reactions:* tinnitus, hearing loss. *Hematologic:* anemia, leukopenia, thrombocytopenia, purpura. *Dermatologic and Hypersensitivity:* urticaria, angioedema, pruritus, various skin eruptions, asthma and anaphylaxis. *Miscellaneous:* mental confusion, drowsiness, sweating and thirst.

Codeine: Average or large doses may cause various gastrointestinal symptoms such as nausea, vomiting and constipation.

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CURRENT DEVELOPMENTS IN PERIODONTICS: PART II

There is now in Canada widespread interest in preventive periodontics. A concerned effort is being made to educate and motivate patients to understand, prevent and control periodontal disease in its earliest form.

The main objective of the profession as a whole is to save the natural dentition. The successful accomplishment of this laudable aim depends, to a great extent, upon the health of the periodontium. With that in mind, this series of five articles has been written to enhance the incorporation of preventive periodontics in general dental practice. Part I of this feature was published in the December issue.

This series was prepared under the guidance of Dr. B. Jalaldin Zulqar-nain, associate professor and chairman of the Division of Periodontics, Department of Oral Medicine, University of Western Ontario.

The whys and wherefores of periodontal surgery

R. H. Johnson, DDS, MSD
London, Ont.

In a short article it is impossible to tell all about periodontal surgery. What may be possible is an overview of why periodontal surgery is done, when it should be attempted, what procedure should be selected for a given situation and, very briefly, how the more common procedures are performed.

Why do it

The answer is simple: the goal of periodontal surgery is to create an environment the patient can keep clean. The principal cause of periodontal disease is dental plaque. If the patient can and will keep every tooth surface free from plaque on a daily basis, he has an excellent chance of stopping the progression of disease. To be cleaned, all surfaces must be accessible, however. If pocket depths exceed 3mm even the most conscientious patient cannot eliminate the bacterial deposit and so the destruction continues. A surgical procedure aimed at pocket elimination therefore may be indicated.

Sometimes the soft tissue collar enveloping the necks of the teeth consists of soft alveolar mucosa rather than firm, keratinized attached gingiva. The former is incapable of withstanding the daily insults of tooth brushing or chewing crusty bread and, because of the discomfort generated on cleaning, the patient soon loses interest and stops plaque control efforts in the area. The resultant inflammation can rapidly extend apically against the weak barrier provided by the delicate mucosa and the tooth eventually may be lost. A technique that will change the mucosa to a tougher gingival tissue is needed.

When to do it

There is not much sense in setting a stage if the actors go out on strike and will not perform. So it is here; success depends not only on the patient's ability to control his disease but his willingness to do it. Time, therefore, is needed so that the patient can master the control techniques and prove that he is sufficiently motivated to persevere without constant supervision. If he will not follow a plaque control program before surgery, he is unlikely to do any better after surgery. The factors that caused the problem in the first place will still be at work and any benefits will be short-lived. Moreover, root surfaces exposed by surgery can become extremely sensitive to sweets and cold if plaque is allowed to accumulate on them. Root caries is another possible complication.

Surgery also should await the completion of gross scaling, careful curettage and root planing. These procedures will often reduce pocket depth to the point where surgery is no longer necessary or at least is less difficult. Boggy, inflamed gingiva will become firm and thus much easier to incise with less bleeding. If a gingivoplasty is attempted without benefit of initial therapy, the "physiologic" contours produced will not last because inflamed tissue is in a state of flux. With pre-surgical therapy, the gingival corium will be healthy and composed of mature, relatively inert, connective tissue fibres that can accept and maintain new contours for an extended period of time.

Sometimes a case may appear to be too advanced for periodontal surgery. However, loose teeth with a questionable prognosis often can be tightened by curettage and root

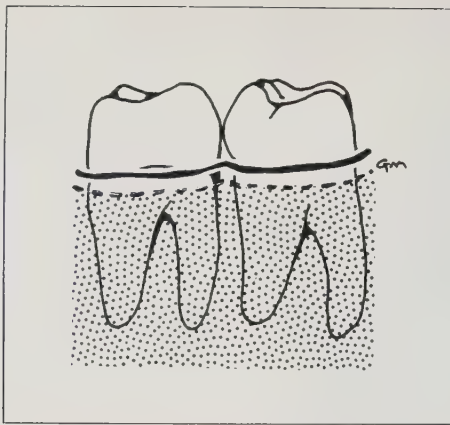


Fig 1 Situation where gingival and bony contours are "physiologic" and pocket depth is insignificant. Patient is responsible for own maintenance.

planing and by careful occlusal adjustment. Temporary stabilization can also be a valuable step in initial therapy; it protects weak teeth while affording the clinician time to evaluate patient co-operation and healing potential before embarking on more extensive periodontal surgery and restorative therapy.

Finally, an appointment should be scheduled after a few months to evaluate initial therapy. A mouth that is free from plaque and calculus, that displays firm, pink, stippled gingiva, and that demonstrates some reduction in pocket depth and tooth mobility is a mouth that deserves the benefits of periodontal surgery. Without these changes the clinician should be very wary about commencing a surgical phase of treatment.

What to do where

The selection of one surgical procedure over another or the decision whether surgery should in fact be undertaken can be difficult. The key to making the correct choice lies in the alveolar bone pattern. In health, a so-called "positive architecture" exists in which the interdental papillae are coronal to the facial and lingual gingival margins; minimum pocket depth is present because a couple of millimetres apically the alveolar bone follows suit (Fig 1). In disease (other than acute ulcerative necrotizing gingivitis) the gingiva maintains this innate scalloping even though the underlying alveolar bone may exhibit bizarre configurations thus producing periodontal pockets (Fig 3-5). The aim of surgery is to minimize the pockets by recreating "physiologic" contours in which both gingiva and alveolar bone run parallel, albeit at a more apical level (Fig 3a). This allows the patient to remove plaque from the now accessible root surfaces.

Some of the more common patterns of increased pocket depth can be handled as follows:

Personal plaque control — When sulcular depth is minimal (<3mm) the patient is responsible for his own dental health care (Fig 1).

Gingivectomy — This is the method of choice when pockets are present in the gingiva, all probings (interproximal, facial and lingual) are approximately equal and the bone pat-

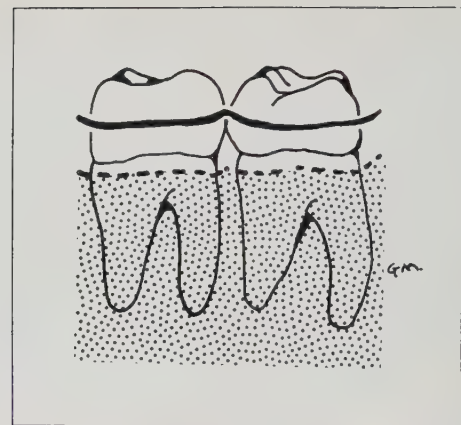


Fig 2 Illustrating physiologic contours but increased pocket depth because of excess gingiva. Gingivectomy is indicated.

tern is "normal" (Fig 2). The technique has limited value because (1) it cannot be used in the presence of infrabony defects — which are common in posterior segments; (2) it may eliminate attached gingiva; and (3) it may produce a cosmetically unacceptable result — especially root exposure of anterior teeth.

Osseous surgery — An undulating pattern of pocket markings in which the interproximal depths exceed those of facial or lingual surfaces indicates bone loss in the interdental areas (Fig 3). This usually calls for osseous resection and recontouring to create positive architecture (Fig 3a).

Reattachment and "fill" — If the bony defect is deep but narrow (Fig 4) subgingival curettage and root planing or an osseous implant are performed in the hope of regenerating lost support. "True" reattachment is a very elusive goal, however, and positive results are not routine.

Maintenance or extraction — When pocket depth is very severe (7-10mm) as in Figure 5, osseous surgery is out of the question because "physiologic" contours would require the resection of so much bone that the teeth would become extremely loose and soon lost. Three avenues are then open to the clinician: (1) he can extract hopeless teeth. (2) He can maintain the teeth as long as possible by periodic (every 4-6 months) curettage and root planing. (3) He can perform flap curettage in which the soft tissue is reflected providing good access for the removal of granulation tissue and meticulous root planing. Pocket reduction rather than elimination is achieved thus making future maintenance easier.

If the problem is not one of pocket depth but of insufficient gingiva then a free gingival graft or a laterally positioned pedicle flap is the procedure of choice.

How to do it

For a detailed description of the actual surgical techniques, the reader is referred to recent articles on the subject¹⁻³ or to any standard periodontal textbook. However, some hints on avoiding possible pitfalls are presented.

Gingivectomy — This procedure suffers from overuse because periodontal disease characteristically exhibits bony defects which cannot be eliminated by resecting the gums. Nevertheless there are definite indications for its use in

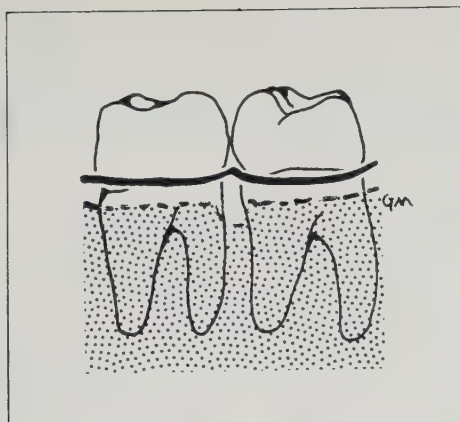


Fig 3a Moderate interproximal pocket depth caused by a bony defect can be corrected by osseous surgery.

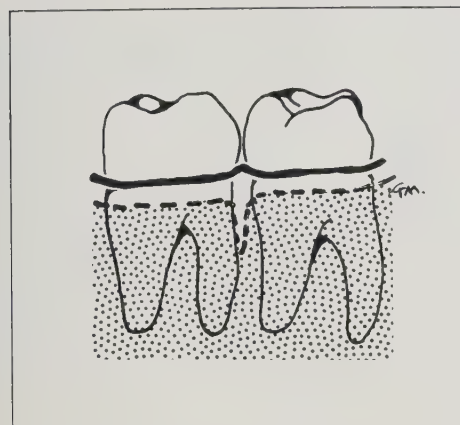


Fig 4 A narrow defect is illustrated. Regeneration of lost attachment is often possible, especially if buccal and lingual bony walls are intact.

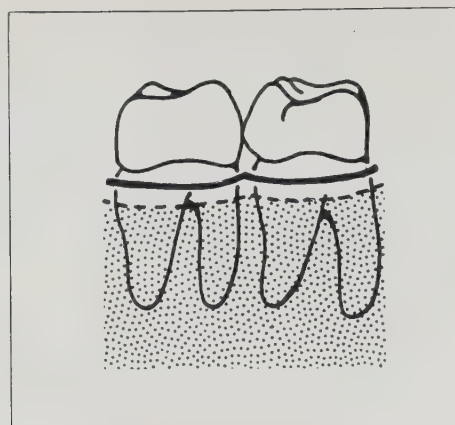


Fig 3b Relationship after osseous surgery. Compare gingival margin with that seen in Fig 1.

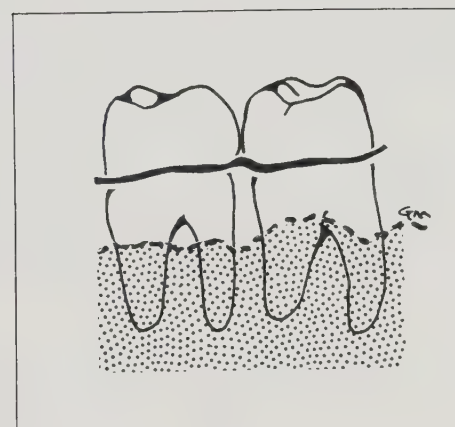


Fig 5 Severe bone loss is demonstrated. Decision must be made either to extract teeth or maintain them as long as possible by curettage and root planing.

diphenylhydantoin hyperplasia or the fibrous build-up frequently seen on the palatal aspect of maxillary molars. The technique thus merits a few words.

Under local anaesthesia pocket depths are marked on the outer surface of the gingiva by making horizontal bleeding points with a periodontal probe. These points must lie within the gingiva and not the alveolar mucosa; otherwise the wrong procedure has been selected. An external bevelled incision that starts 1-2mm apical to and follows the flow of the bleeding points is made with a broad-bladed gingivectomy knife. It is important to make just one incision — the correct one. Removing a little gingiva at a time mutilates the margin and makes the tissue more difficult to cut with each successive attempt. The interdental tissue is released with a spear-shaped knife and a sharp curette is employed to remove tissue tags and plane the roots. Coarse gingivoplasty diamonds under high-speed and water are excellent for tapering gingival margins and creating vertical interdental sluiceways.

The bleeding, slippery surface produced by the external bevelled incision makes the placement of some dressings, such as Coe Pak (Coe Laboratories, Chicago), difficult. The haemorrhage and slippage can be controlled by mixing the dressing in the regular manner and then rolling it in tannic acid powder. Alternately, a stiffer dressing such as that

made by Professional Products Company (P.O. Box 1628, San Diego) can be used.

Osseous surgery — This is the commonest surgical procedure in periodontics.

In reflecting a flap the following precautions should be observed. Gingiva provides a protective barrier and must not be excised cavalierly. In all areas but the palate a marginal internal bevelled incision is made removing the sulcular epithelial lining but maintaining the gingiva itself. On the palate, where there is no shortage of tied-down keratinized tissue, internal bevelled scallops are made over each tooth root so that the base of each scallop coincides with the expected post-surgical level of the bony crest.²

Relaxation must be adequate. A flap reflected under tension makes access to the underlying bone difficult and slows healing. An envelope flap extended for one or two teeth mesial and distal to the actual problem area usually provides adequate exposure. Vertical releasing incisions can increase relaxation but may delay healing and can cause bleeding problems if made on the lingual of the lower second and third molars and in the posterior part of the palate. If vertical incisions are planned, they should be positioned in the interproximal region and not over the prominence of the root.

The relative merits of full and partial-thickness flaps have been discussed in detail elsewhere.³ For most situations, however, the full-thickness flap is recommended.

Care should be taken not to tear or perforate the flap. This will compromise its blood supply which often leads to a sloughing of the soft tissue covering the bone. Not only can this be painful to the patient but in areas of thin bone, irreversible loss may take place.

Once the flaps have been reflected, granulation tissue is removed with curettes and the osseous configuration visualized. Bony ledges are thinned and vertical grooves placed in the inter- and intra-radicular bone with a No. 8, long-shank, carbide bur under high-speed and water. With healing the overlying gingiva will take on deflective contours. Care must be taken not to overthin the bone, especially the radicular bone where no cancellous core is present to provide repair potential. Interproximal defects then are flattened with a Schlager file. Finally, the coronal height of the facial and lingual bone is reduced with straight and back-action chisels to end up with the desired positive architecture. To prevent unnecessary furcation involvement, the roots of molar teeth can be treated like two bicuspsids with a high point of bone being maintained in the intra-radicular area.

Flap placement (as distinct from closure) is very important. The margin of the facial and lower lingual flaps must be placed at or barely coronal to the new crest of the alveolar bone. The elastic nature of the alveolar mucosal portion of the flaps makes this possible. If the flaps are pulled coronally, soft tissue pocket depth will result negating the benefits of osseous recontouring. The continuous sling suture as modified by Dahlberg,⁴ which allows the facial flap to be placed independently of the lingual or palatal, is therefore advocated. The palatal flap, having no alveolar mucosa, cannot be positioned apically. However, if the scalloping was done correctly, the soft tissue margin should be located at the bony crest. Pressure with a moist gauze is applied to the flaps and a suitable dressing placed. An analgesic is also prescribed. The dressing and sutures are removed about a week later.

Mucogingival surgery — Part of this topic was covered in the preceding discussion of flap management. The following comments are therefore restricted to the problem of an inadequate zone of attached gingiva.

For the single tooth devoid of gingiva, the laterally positioned flap is the procedure of choice. A partial thickness flap is reflected in the recipient site and gingiva from an adjacent tooth or edentulous area is rotated on its base into position and sutured. The connective tissue covering the bone in the donor site re-epithelializes like a gingivectomy wound. Root coverage along with increasing the zone of gingival tissue in the recipient site is a possibility because the flap brings its own blood supply. Gentle root planing may aid in the formation of a firm attachment between the previously denuded root and the rotated flap.

A major limitation of the technique is that an adequate

donor site must be located immediately beside the area in need of gingiva. Care also must be taken to ensure that one defect is not traded for another. An improperly prepared donor site in the presence of thin or no bone may result in severe gingival recession.

Free gingival grafts have been used in areas of multiple tooth involvement and in locations where no suitable donor tissue is available for a laterally positioned pedicle flap. The recipient site is prepared first by making a horizontal partial thickness incision just coronal to the mucogingival junction. The incision is extended about a half a tooth mesial and distal to the area lacking gingiva and with sharp dissection a partial thickness flap is reflected. The periosteal layer is retained but must be thin and must not move when tension is applied to the adjacent lip or cheek.

The graft itself usually is removed from one side of the palate just posterior to the rugae with a sharp knife or scalpel. Up to 20 per cent shrinkage can occur, especially in thick grafts; so allowances must be made to secure a piece of tissue that will be about 1mm thick, 4-5mm wide, and long enough to cover the recipient site. Surgicel (Johnson and Johnson, New Brunswick, NJ) is an excellent hemostatic agent for the open palatal wound. The graft then is sutured onto the prepared bed, held carefully in place with moist gauze for a few minutes, and covered with a soft dressing such as Coe Pak.

Conclusion

A brief overview of periodontal surgery has been presented. Because periodontal disease is universal and because periodontists are few in number, the general dentist has a very vital role to play in treatment. Early recognition and the institution of preventive measures are imperative before surgery becomes necessary. For the already advanced case an excellent alternate to surgery is a program of strict plaque control and periodic (every 4 to 6 months) curettage and root planing. If surgery is to be performed, a successful result is more likely when pocket readings are in the 4-5mm range than when pocket depths are 8 or 9 mm. This does not imply an urgency to pick up a scalpel; on the contrary, time is needed to bring the active disease under control. *Cutting too soon often leads to doom!*

The author expresses appreciation to Dr. R. I. Brooke for reviewing this paper.

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Wound healing and its periodontal implications

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Dental bacterial plaque is the ultimate cause of periodontal disease and wounding. Plaque, when allowed to accumulate, provokes inflammatory and immune responses in the tissues that in the early stages are reversible (gingivitis) but with time cause tissue destruction (periodontitis). Should tissue destruction occur, the defects may ultimately be corrected by some form of surgical procedure. Healing supervenes when epithelium and soft and hard connective tissues are formed and restored as a functional entity. Here, as in the analogous primordial development of the periodontium, fundamental biological events are involved.

In this article wound healing events in general will be briefly reviewed and their relation to periodontal healing discussed. Healing following curettage and gingivectomy will be specifically described. To augment material presented here an abbreviated list of references is appended in the bibliography.

Wound healing: a perspective

The events following tissue injury have been documented since the time of Lister and descriptive detail has since been derived largely from the study of cutaneous wounds. In principle, a similar sequence of events follows wounding of the periodontium. Variations from this sequence due to the complexity of the periodontium will be dealt with in the sections on curettage and gingivectomy.

Events following wounding

During the first four hours there is a disruption of tissues and extravasation followed by clotting. This sets in motion a series of physical and chemical reactions which lead to tissue swelling and other manifestations of inflammation. Vasoactive kinins, histamine, heparin and serotonin are but a few of the chemical mediators of inflammation and they, among others, may cause pain, blood vessel dilation and other actions. At the same time, polymorphonuclear leucocytes arrive at the clot site to ingest detritus and may also contribute to inflammation in other ways. The ground substance loses continuity and collagen and other fibres undergo fragmentation. Enzymes such as collagenase and proteases are activated and may be detected in tissue fluid.

During the fourth to sixth hours, swelling continues and hyperaemia occurs. Leucocytes are present in large numbers and macrophages appear. By now, there is strengthening of the blood clot.

By the end of the first day, the tissues grossly appear swollen and red, a clot is present and the patient may experience discomfort in the wound area. At this time, at a histological level, epithelial cells at the edges of the wound begin mitosis. Epithelial events precede connective tissue changes. Early migration of epithelial cells now begins as a sheet under or through the clot and over healthy underlying tissue. Just evident now are new fibroblasts or fibroblast-like cells at the wound edge in the perivascular tissue from which they may be derived. Epithelium may be involved in modulating connective tissue cell or precursor activity. Inflammation, mitosis and cell migration become active during the first 24 hours following wounding. Toward the end of the third day the wound, while still inflamed, is smaller in size and granulation tissue is present. Histologically, granulation tissue formation is well advanced. Fibroblast mitotic activity is markedly increased. There is secretion of ground substance and a few connective tissue fibres are evident. Sheets of centripetally migrating epithelial cells may have fused and cover the wound surface followed by maturation of epithelium. There is a thickening of epithelium by increase in cell numbers and keratinization by differentiative modulation of cells.

Repair occurs and construction begins when debridement is nearly complete. Wound contraction occurs. Cell division and differentiation are segregated.

By the fourth to sixth days, the wounded tissue appears to be healing and inflammation is decreasing. The appearance of the tissue has been taken over by connective tissue changes, including ground substance formation and fibrogenesis. Collagen fibre formation is well underway.

By the sixth to tenth day the tissues appear almost normal though still red. Collagen fibres mature and tissue strength increases markedly. Clinically, sutures are removed at this time. Epithelium is now restored in thickness but keratinization may not be clearly evident for two to three weeks.

During succeeding days, collagen fibre synthesis continues and may do so for many weeks. At the same time,

there is remodelling of the connective tissues. This remodeling and the formation of more and larger fibre bundles is largely responsible for the tensile strength which continues to develop in the healed wound for an indefinite period of time.

For all intents and purposes, regeneration or repair has occurred. (The terms "regeneration" and "repair" are often used interchangeably in discussions of wound healing; yet they refer to distinct activities. Regeneration is the process by which organisms reconstitute functional lost parts of the body whereas repair is the limited restriction of defects with tissues which do not restore original function nor structure.)

Repair of bone

Bone, a unique connective tissue, reacts to injury like other connective tissues but with differences due to its mineralized structure. As in soft tissue, repair is mediated by cells which in bone are the osteoclast and the osteoblast. Osteoclasts may be multinucleate and resorb bone. Osteoblasts can be induced to secrete fibres, ground substance, and other products such as calcium or magnesium which can mineralize into bone tissue. These cells are derived from cells which can be induced to become bone cells.

Many factors can inhibit or induce destruction or repair of surgically wounded bone. For example, granulation tissue which appears to retard osseous regeneration is removed by curettage as a rule. In addition, the type of bone in the area, whether cancellous or cortical, and its potential to provide cells for repair is important.

Recently, some insight has been achieved into the mechanisms of bone destruction during periodontitis. The defensive yet invidious cell-mediated immune response (currently held to be partly responsible for the manifestations of chronic periodontitis) has been shown to exert its effects by secretion of chemical substances from component lymphocyte cells. One such substance or lymphokine has been labelled osteoclast-activating factor (OAF) and by activating osteoclasts in a way as yet unknown becomes responsible for bone resorption.¹

Healing in the periodontium

Following plaque control, periodontal pockets may be eliminated or decreased by any of several surgical techniques depending on the indications in the specific case. Curettage and gingivectomy are two procedures which are frequently used in the general practice of dentistry. They will be discussed as examples of wound healing following surgery.

Curettage — Subgingival curettage, the oldest periodontal surgical procedure, is used to achieve two responses: shrinkage of inflamed gingiva and reattachment of epithelium to tooth and connective tissue to tooth and bone with resultant pocket elimination. Therefore, curettage should be used when tissues are inflamed, not fibrous, and pockets must not be so deep as to prevent complete in-

strumentation. Local anaesthesia is usually required. The aims of subgingival curettage are to remove the epithelial attachment, the necrotic epithelial lining of the pocket, localized connective tissue, and all granulation tissue. Careful removal from the pocket of all connective and granulation tissue next to bone is important. New bone as part of the attachment apparatus will be formed on this "clean" bone surface. In addition, the root surface is also planed. Root planing to remove calculus and surface roughness is necessary for plaque control but complete removal of "necrotic" cementum may be unnecessary, because cementum may not reform on exposed dentine but secondary cementum can form on "necrotic" cementum.^{2,3} Root surfaces should therefore be planed until they are smooth to the touch with an explorer.

Epithelial attachment to the tooth occurs within three or four days following curettage and maturation of the gingival sulcus epithelium occurs shortly thereafter.⁴ Osseous tissue is superficially resorbed in the area during the first week followed by formation which occurs prior to cementum deposition. Cementum deposition followed by collagen fibre insertion occurs about three weeks after curettage. Collagen fibre attachment to root surface appears to be necessary to prevent apical migration of the epithelial attachment.⁵ Connective tissue cells or the root surface itself may "influence" epithelial activity. Plaque control is mandatory during this time since inflammation may delay or alter the healing pattern. Reorganization and remodelling of tissues occur over succeeding months and results of curettage should therefore not be judged with haste.

Subgingival curettage may be done every three to four months as part of maintenance therapy for patients who have periodontal pockets and bone loss to such an extent that mucogingival surgery is contra-indicated.

If subgingival curettage is performed properly pocket depth can be eliminated or reduced substantially and stable long-term benefits can be achieved.⁶

Gingivectomy

Gingivectomy is usually performed to eliminate periodontal pockets not associated with infrabony defects. The base or depth of the pockets should be at least 2 mm from the mucogingival junction and correspondingly, there should be a wide zone of attached gingiva.

Increasing use is being made of electrosurgery to remove excess tissue around abutment teeth. Post surgically, a longer clinical crown is seen since the gingival attachment is re-established more apically. Subsequently, the gingival collar again creeps 2-3 mm coronally during the following weeks.

Gingivectomy which encroaches on the mucogingival junction results in alveolar mucosa forming the functional gingiva at the tooth. Since alveolar mucosa is not meant to withstand functional forces, recession may eventually occur. One problem has been replaced by another with a more unpredictable prognosis.

Healing of gingivectomy wounds proceeds along general lines described earlier. Larger wounds take longer to heal but epithelium moving about 0.5 mm per day covers the wound by about the fifth day.⁷

Connective tissue changes are influenced by and follow epithelial changes. An epithelial attachment to tooth and a rudimentary sulcus may be formed within one week,⁸ and are usually evident by the twelfth day following surgery.⁹ Epithelial attachment occurs to dentine, enamel or cementum by means of hemidesmosomes and a basement lamina secreted by the epithelial cells.¹⁰ This attachment is strong, resists displacement and should allow probing of crevice depth within three to four weeks after surgery.

Two weeks after surgery keratinization of marginal gingiva is well established and by three weeks a well structured functional crevicular epithelium has been formed. The marginal gingiva is restored by a coincident upgrowth of connective tissue and is usually fully formed by the fifth week. Cementogenesis occurs more slowly, however. In essence, complete restoration of the marginal gingiva has been achieved. Since the new epithelial attachment is now at a more apical position, there may be debate as to whether true regeneration has occurred. Done correctly, however, gingivectomy is followed by restoration of a functional gingival unit.

If bone is involved in the gingivectomy incision, an altered healing pattern results. An incision which uncovers bone but leaves periosteum intact causes immediate resorption followed by osteogenesis and essentially complete restoration of height by about four months. Bone left without its periosteal covering is severely resorbed and does not regenerate to its pre-surgical height. Healing does not appear to be altered or delayed when gingivectomy is done with rectified electrosurgical instruments. There is a marked reaction, however, if bone is involved. Non-vital sequestra may be formed and substantial bone defects may result.

Possible future developments

Mitotic control — In 1965, Bullough and Rytömaa¹¹ advanced a new theory to explain the mitotic behaviour of cells following wounding. They proposed that cells produce chemically undefined substances called chalones which can diffuse over short distances and inhibit mitosis. When tissues are lost through wounding, chalones are also lost or diluted by oedema. Mitotic inhibition is thereby decreased and mitotic activity consequently increases in adjacent tissues. Chalones seem to depend on local epinephrine concentration and may be involved in a chalone-epinephrine active complex. Elevated epinephrine concentrations which occur during times of stress may depress mitotic activity and subsequently retard healing. Chalone activity may, however, be necessary to promote tissue function with mitotic inhibition a secondary outcome. Function or differentiation and cell division may therefore be mutually exclusive processes.

Osseous tissue induction — The successful repair of osseous defects with fresh and frozen autogenous bone grafts reflects a basic observation concerning the potent osteogenic potential of bone marrow and endosteum. Iliac crest marrow as a source of bone potential necessitates a separate surgical procedure and limits routine use or acceptance. Other bone induction materials are being tested and may soon find clinical application. However, until there is better understanding of the basic principles of bone formation and loss, wound healing will continue to occur following surgical manipulation of bone already biologically altered.

Instruments to monitor periodontal status — The influence of systemic factors on periodontal healing provides a relatively unexplored area for study. The Gingival Crevice Fluid Meter (HARCO Electronics, Winnipeg) has recently been used to monitor healing of periodontal surgical wounds in the controlled diabetic patient. In preliminary work (Stakiw, unpublished) tissues appeared clinically healed three to four weeks after surgery but there was a protracted increase in crevice fluid flow for up to six weeks post surgery. Collagenase activity in the same collected crevice fluid samples fluctuated with fluid flow. Tissues in non-diabetic patients also appeared healed by four weeks post surgery but, in contrast, had normal fluid flow at this time without collagenase activity.

The use of such instruments to monitor subtle dynamic inflammatory changes in tissues can provide the objective criteria necessary to monitor both healing and disease. Both preventive and treatment measures could be invoked prior to the appearance of gross clinical changes where potentially irreversible tissue changes already may have occurred.

Chemical agents — Recent studies have shown that chlorhexidine dressings placed over surgical wounds lessen the severity of inflammatory changes in the tissues and speed healing.¹² In addition, sutures which can adversely affect healing, may be replaced by tissue adhesives with resulting advantages. Such advances may modify surgical practice significantly.

Conclusion

Certain aspects of general and periodontal wound healing have been presented. Only by understanding basic principles and underlying biological mechanisms of healing can we begin to understand why tissues react to injury as they do, why surgical techniques fail or why disease becomes chronic. Future discoveries in cell and tissue biology may find application in new and improved clinical methods in dental practice.

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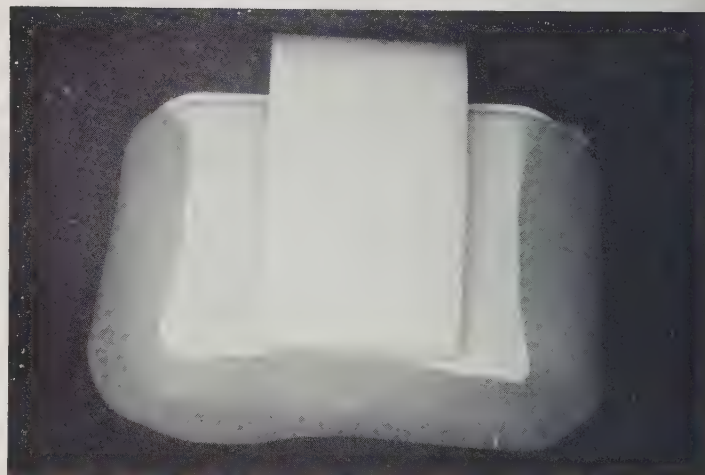
Conseil pratique pour faciliter la prise de radiographies périapicales à la mandibule

Y. Galindo, D.D.S., M.Sc.
Québec

Le placement d'un film au plancher de la bouche peut présenter certaines difficultés à cause de l'inconfort d'une telle procédure pour le patient et parfois même à cause de la douleur occasionnée par cette manipulation.

Une pellicule périapicale, pour donner une image complète des molaires inférieures, de leurs racines et des tissus environnants, doit s'appuyer sur le versant lingual de la mandibule et sur la ligne oblique interne. Il arrive fréquemment que l'insertion musculaire du mylohyoïdien soit poussée vers le bas par le rebord tranchant du film quand il est mis en position correcte. Cette pression crée souvent une irritation de la muqueuse et parfois une douleur ou du moins une sensation de malaise chez le patient. Quelques patients tolèrent ces inconvénients jusqu'à la prise de la radiographie. Bon nombre d'entre eux, et d'une façon inconsciente, diminuent la pression exercée par le film en le bougeant vers le haut... déplaçant ainsi le centre de l'image radiologique recherchée. D'autres patients refusent tout simplement d'accepter ce procédé.

On peut comparer le contour d'une pellicule périapicale au bord tendu d'une feuille de papier. L'effet coupant de la mise en place du film et les ennuis qu'il suscite peuvent s'atténuer en arrondissant et en épaississant sa tranche. On peut, afin d'obtenir cette situation, placer un cylindre en cire (Lactona, "Periphery Wax") à son pourtour. Cette cire est celle qu'on utilise à la périphérie des porte-empreintes métalliques. Elle a l'avantage de pouvoir être facilement manipulée à la température ambiante. Elle adhère suffisamment pour ne pas être déplacée par l'opérateur ou la langue du patient. Elle peut pourtant être retirée sans



difficulté avant le développement du film. Cette cire offre peu de résistance aux tissus mous en comparaison de la tranche coupante du film et s'y adapte plus facilement.

Cette méthode assure la coopération du patient et l'opérateur peut placer le film dans la position idéale au cours du temps nécessaire pour la prise de la radiographie. L'inconfort et la douleur que provoque le rebord tranchant du film sont ainsi diminués et parfois complètement éliminés.

Dr. Galindo est avec l'Université Laval à Québec.

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In a study of 90 patients with oral pain due to pericoronitis, peridontitis, accidental or iatrogenic injury and aphthous ulcer, Novak concluded, "in both immediate and retrospective evaluations, 93% of the patients reported satisfactory relief of pain with Chloraseptic."¹



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Simulated dry socket: delayed healing of extraction wounds in rats

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London, Ont

Localized post-extraction osteitis (dry socket) is a surgical complication that occurs with variable frequency.^{1,2} Numerous factors have been implicated in the production of this postoperative complaint. Its clinical features are disintegration or dislodgement of the blood clot followed by a local osteomyelitis.² Since extraction wounds are exposed to the bacteria in saliva and the gingival crevice, it has been assumed that dry socket is a sequel of infection of the tooth socket. The fact that the incidence of dry socket can be reduced by the use of topical antibiotics has lent support to this view,^{1,3-5} but whether this is actually so has never been scientifically determined. Although there are many reports about normal healing of extraction wounds and the treatment and prevention of localized osteitis, there have been few histological evaluations of this process. One of the reasons has been the lack of a suitable model which can demonstrate this form of delayed healing.

Normal healing of a tooth socket proceeds through four stages:⁶ formation of a blood clot which fills the socket, (b) organization of the blood clot by proliferation of young connective tissue, (c) gradual replacement of young connective tissue by coarse fibrillar bone and (d) reconstruction of the coarse fibrillar bone and its replacement by mature osseous matrix. This sequence is delayed or permanently interrupted when, for unknown reasons, the blood clot fails to organize and disintegrates. A dry socket is therefore a clinically significant delay in the healing process. Specific bacteria may play a role in this delay.

The following experiment was designed to simulate this process by inoculating a fresh socket with a "potential pathogen" in order to interrupt or delay the normal healing process at will. An animal model can thereby emerge to test and evaluate possibilities for prevention of dry socket.

Material and method

Twenty male Long Evans rats were randomly divided into experimental and control groups of 10 animals each.

Previous experiments had shown that animals weighing 200-225 gm were best for the surgical procedure.

The animals were pre-anaesthetized by subcutaneous injection of paraldehyde 0.1 ml/100 gm of body weight. The surgical stage of anaesthesia was produced by inhalation of ether for a short period of time prior to the surgery. The anaesthetized rat was placed in a restraining device (Fig 1) which stabilized the head.

Each tooth was luxated with elevators fabricated from dental explorers and then removed using modified haemostats. Great care was taken not to fracture root tips or cortical bone. After extraction, the mouth was cleansed of blood, saliva and debris to avoid aspiration.

The experimental animals had their fresh sockets inoculated with a suspension of a 48-hour culture of *Actinomyces viscosus* ATCC 15987 (a Gram positive branching organism) mixed with *Streptococcus mutans* 6715 (short chains of Gram positive cocci). The culture was deposited into the depth of the socket using a fine plastic catheter. The same procedure was performed on control animals except that no culture was deposited. The animals were returned to the cages and fed a high sucrose soft diet 2000⁷ and water *ad libitum*.

Paired rats were sacrificed by guillotine at 2, 4, 5, 6 and 8 days postoperatively. The mandibles and associated soft tissues were dissected from each animal and fixed in 10 per cent formalin, decalcified and embedded in paraffin. Sections were cut at 6 microns and stained with haematoxylin and eosin for histological examination. Selected sections were stained by the Gram method.

Sockets which revealed root tips or severely traumatized cortical bone were excluded from histologic study.

Results

Two days — The control sockets were completely filled with blood clot. Erythrocytes were distributed unevenly throughout the coagulum and more abundant in the api-

cal third of the socket. Swirling networks of fibrin were apparent in the coronal and middle thirds. These circular areas were generally devoid of blood cells and correspond to the observation of Huebsch et al.⁸ Scattered leucocytes were found along the surface of the clot. The periodontal ligament (PDL) was seen as a lining of viable tissue completely covering the inner aspect of the alveolar bone. High magnification revealed ingrowth of new capillaries and groups of young fibroblasts with plump nuclei along the entire PDL. Replacement of the blood clot was more advanced in the apical third. (Fig 2).

There was little difference between control and experimental sockets after two days. The blood clot completely filled the experimental sockets and the PDL was also evident. Young unorganized connective tissue was just beginning to stream into the clot at the apex. Fibrinous exudate and debris covered the surface of the clot (Fig 3).

Some sections from experimental sockets showed an apparent separation of the PDL remnants from the coagulum. This might indicate that connective tissue replacement had not progressed as well as in the control sockets and that the coagulum had been torn away from the PDL during processing.

Four days — Young connective tissue completely filled the control sockets. Scattered foci of degenerating erythrocytes occupied the centre where the connective tissue was not completely organized. The PDL was now continuous with the connective tissue and could no longer be identified as a distinct structure. Only scattered leucocytes were evident. Though osteoclasts were observed, activity of the periosteum of the bone lining the socket was a predominant feature. Young trabeculae extending from the older bone were lined by plump active osteoblasts. This early deposit of bone matrix could be followed throughout the socket and was almost continuous from one side to the other. In some sections “artifactual clefts” were observed which seemingly separated the connective tissue from the bone. Large thin-walled capillaries were found in this area and it is apparent that these tissues had to be split during processing from the bone lining the socket (Fig 4).

Clots in the experimental sockets had also been completely replaced by young connective tissue, but there were scant signs of bone formation. Some osteoblasts were observed at the base of the sockets. All animals exhibited considerable fibrinous exudate attached to the coronal surface. This friable mass was densely infiltrated with leucocytes. Dense accumulations of leucocytes were also seen within the sockets of some animals. Cells of the PDL and periosteum were necrotic or degenerating when these “abscess-like” areas were near the remnants of these two tissues. There was no evidence of new bone formation around these accumulations of leucocytes (Fig 5).

Five days — The control sockets showed continued formation of new bone and osteoid. Much friable fibrin clot re-

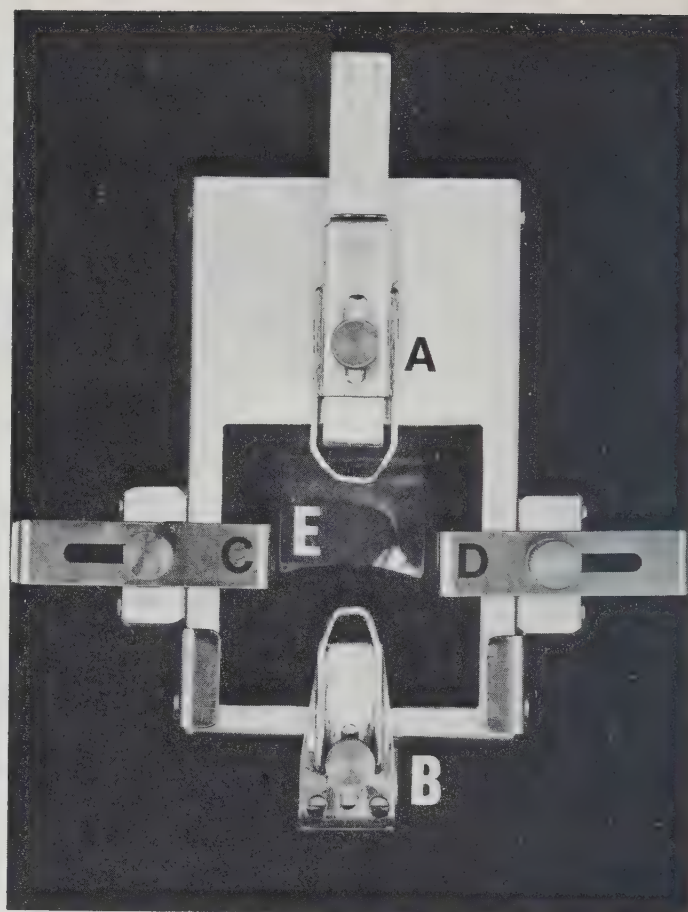


Fig 1 Restraining device. A and B, incisor grips. C and D, cheek retractors. E, head slide.

mained on the surface of the experimental sockets, however. The PDL was replaced by connective tissue which resembled the tissue which now filled the inferior of these sockets. There was still very little new bone formation; however osteoblastic activity was readily apparent along the lining trabeculae. In many of the sockets, especially those with dense accumulations of dead and dying leucocytes, the content seemed to be loosely attached to the lining bone. Clefts between the connective tissue and the bone were evident in almost all sections.

Six days — Well formed trabeculae now coursed right across all the control sockets. Osteoclastic activity was apparent at the coronal edge of the sockets. All connective tissue interspersed between the trabeculae was by now well organized, and very few leucocytes were seen. Bone matrix had begun to calcify and osteocytes were evident. Plump active osteoblasts lined all the new trabeculae. Only the coronal edge showed some delay evidenced by an earlier stage of bone formation.

Organized mature connective tissue filled the control sockets. There was evidence of bone matrix and calcification with the formation of trabeculae. Leucocytes were still apparent in the coronal third, however. In most areas plump osteoblasts lined the trabeculae of the socket. Numerous osteoclasts appeared to be remodelling the coronal bone.

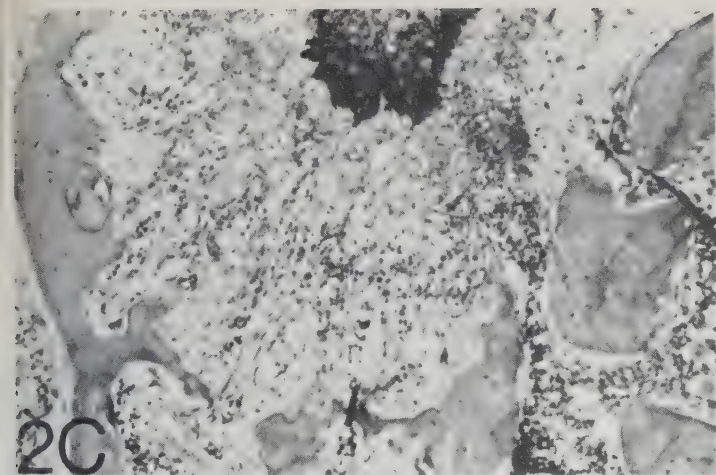


Fig 2 Two day control animal. Apical third of socket. Granulation tissue replaces the blood clot. Remnants of the periodontal ligament appear to be viable. H and E. $\times 50$.

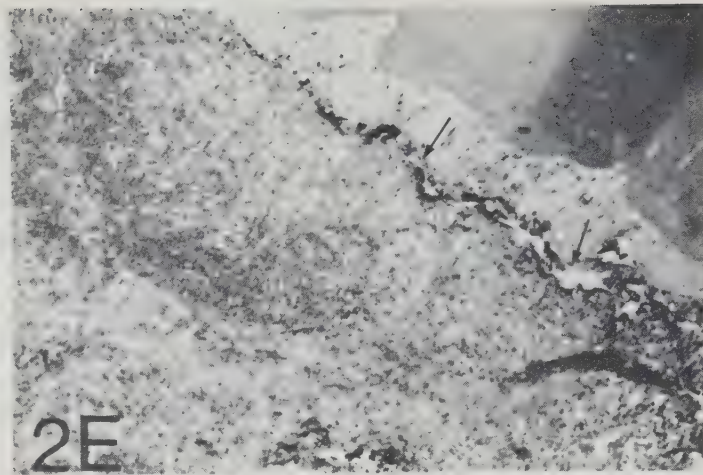


Fig 3 Two day experimental animal. Lateral wall of socket. Fibrin clot and periodontal ligament appear normal. Arrows indicate artifactual clefts marked by dye. These may be caused by sparse ingrowth of granulation tissue. H and E. $\times 50$.

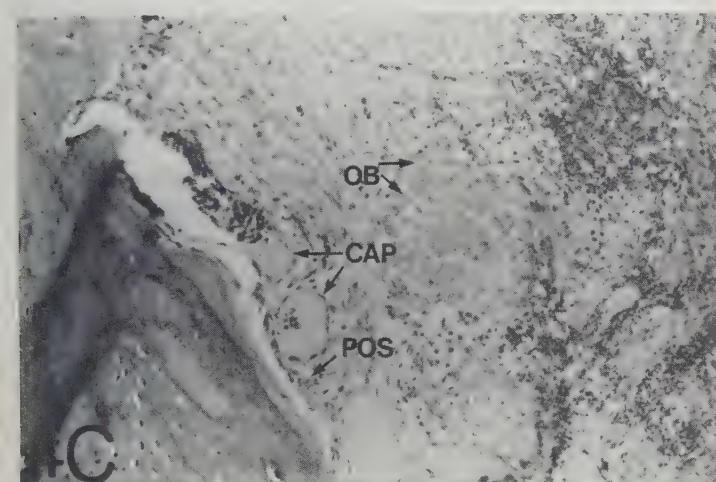


Fig 4 Four day control animal. Lateral wall of socket. Organized connective tissue is continuous with the periodontal ligament. A core of granulation tissue and clot remnants remain in the centre of the socket. Osteoblasts (OB), periosteum (POS) and thin-walled vascular channels (CAP) are apparent. H and E. $\times 50$.

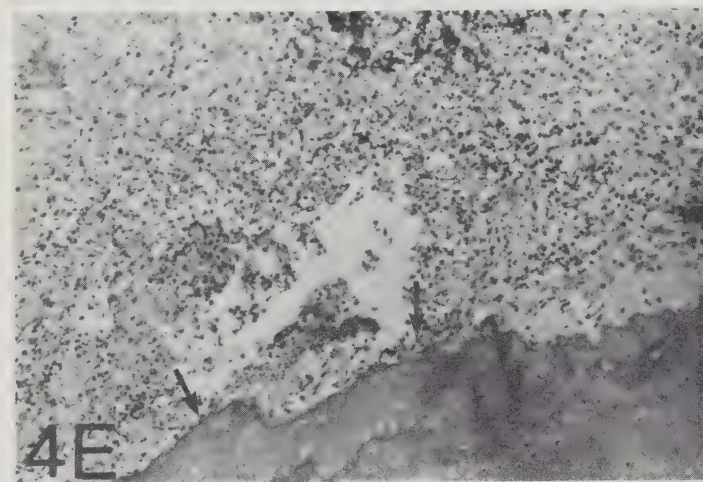


Fig 5 Four day experimental animal. Lateral wall of socket. Numerous leucocytes are present. Arrows indicate an area of necrosis of the periodontal ligament. Tissues in this section lack the organization and evidence of new bone formation seen in Fig 3. H and E. $\times 50$.

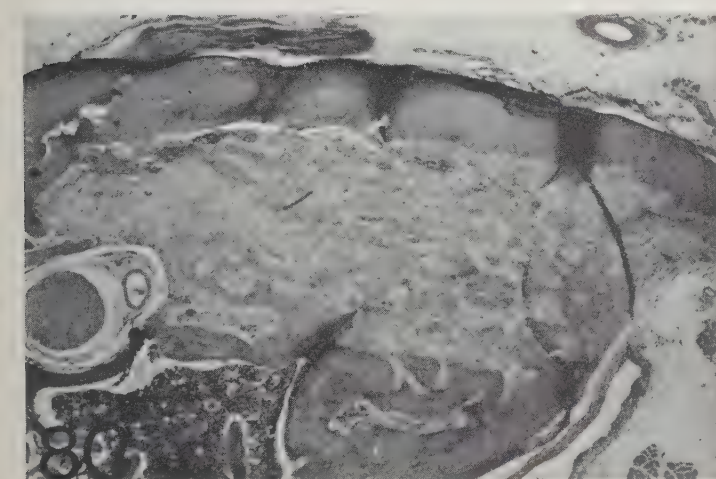


Fig 6 Eight day control animal. Longitudinal section of the complete socket. Mature trabeculae and organized connective tissue. No evidence of inflammation. H and E. $\times 12.5$.

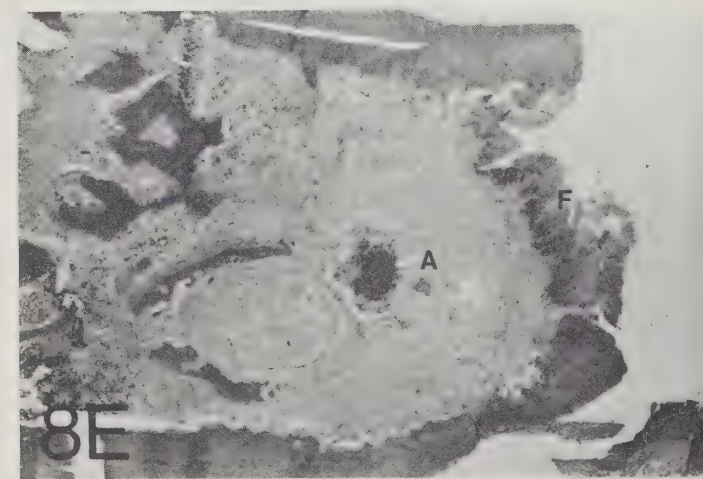


Fig 7 Eight day experimental animal. Longitudinal section of the complete socket. Although connective tissue fills the socket, there is little evidence of bone formation. Note the fibrinous exudate and layer of inflammatory cells (F). A large abscess (A) and smaller areas of focal inflammation can be seen. H and E. $\times 12.5$.

Eight days — Coarse heavy trabeculae now filled the control sockets. Organized mature connective tissue was evident between the trabeculae and only an occasional leucocyte could be found. Remodelling osteoclastic activity was still seen at the periphery. The PDL had completely disappeared (Fig 6).

Most of the eight day experimental sockets appeared identical to their control counterparts. However, a marked difference was noted in a few animals. Sections of the socket from these creatures revealed an abscess within the connective tissue filling the socket. Other smaller microabscesses were scattered throughout the socket. Fibrinous clot debris and colonies of bacteria were found on the surface and in areas along the lateral walls of socket (Fig 7). The dense masses of leucocytes within the socket were also associated with bacterial colonies. Gram stain of these sections revealed that the microcolonies were composed of a mixture of at least two organisms resembling *A viscosus* and *Str mutans*. These animals revealed only early evidence of osteoid formation and immature trabeculae, comparable to the level of bone activity observed in the four day control sockets.

Discussion

Localized osteitis following tooth extraction remains one of the most perplexing postoperative complications of oral surgery. Since Crawford⁹ first applied the term "dry socket" in 1897, many synonyms have been used for this entity. Some of these included alveolus osteitis, post-extraction alveolitis and alveolitis sicca dolorosa.

Waite¹⁰ uses the term "delayed extraction wound healing" which exactly describes the clinical course of the condition, although it does not express the visual symptom of severe pain. There seems to be no doubt, however, that for one reason or another there has been interference in the normal dynamics of wound healing.

The aetiology of delayed extraction wound healing has been the subject of many investigations. Many of the clinical studies have attempted to prevent the occurrence of the complication by giving the patient an antibiotic, vitamin or chemotherapeutic agent. Others compare surgical modalities and then analyse the results of the treatment. These approaches are most difficult to manage and the results are always open to wide ranging interpretations. Evaluation of the results of treatment of the condition gives little information as to the cause. The aetiological role of "potential pathogens" that could invade the socket, following extraction, and interfere with normal healing was not, in our knowledge, tested in an experimental animal model. *A viscosus* and *Str mutans* are considered "potential pathogens" in dental caries and oral bone diseases.¹¹⁻¹³ A synergistic effect was reported in superinfection with *A viscosus* Nyl and *Str mutans* OMZ61 on plaque formation, smooth surface and fissure caries in experiments on conventional Osborne-Mendel rats.¹⁴ Many of the aetiological theories suggest that the loss of integrity of the blood clot in the first few days probably plays a role. Interference with the re-

generating capacity of the remaining elements of the PDL may also be an important factor. These concepts are most difficult to test on human subjects. Therefore, it is important to develop an animal model to induce at will a delayed wound healing following tooth extraction.

A noticeable difference between the control and experimental animals was observed by the fourth day. Where the distinctive feature in the controls was osteoblastic activity, there was little histologic evidence of bone formation in the experimental animals. The sockets of all the experimental rats were consistently covered with a friable fibrinous exudate. In some of the walls of the socket, the PDL was necrotic and there was no evidence of periosteal activity. Healing of the socket wounds in these experimental animals was considered to be delayed.

At the sixth day most of the experimental animals had apparently overcome the noxious stimulus and were well on the way to normal healing. By eight days all control and most experimental animals were histologically identical. A few animals were still unable to overcome the insult, however, and had microabscesses scattered throughout the socket with little or no new bone formation. Socket healing in these animals was significantly delayed.

These observations deserve further investigation. However, the remarkable healing potential, small size and surgical difficulties in the rat are major handicaps to such studies.

Summary

This preliminary experiment has shown that delayed healing of socket wound can be achieved in rats using inoculation of the "potential pathogens" *A viscosus*, ATCC 15987 and *Str mutans* 6715. The results suggest that the delayed healing results from interference with the regenerating capacity of the cells of the periodontal ligament.

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The retaining device was fabricated by the Faculty of Engineering Science, University of Western Ontario.

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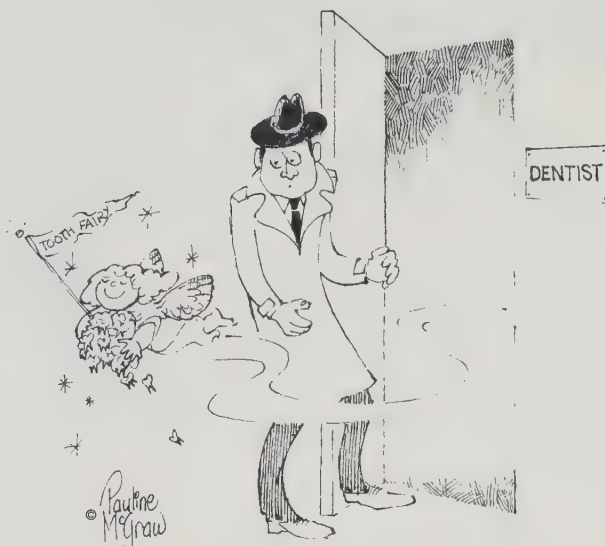
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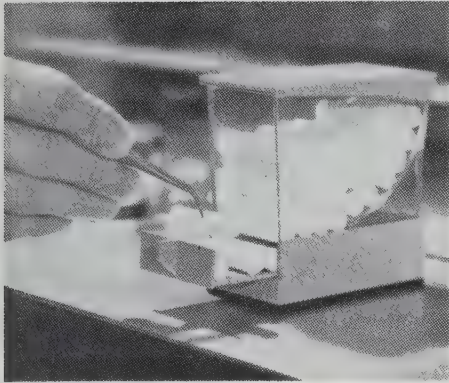
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ADVERTISERS' INDEX

Ash Temple Ltd.	45
Astra Pharmaceuticals	OBC
Block Drug	15,23,26
L. D. Caulk Co. of Canada	IFC
Colgate-Palmolive Ltd.	13
Denco	22
Dentsply International	4,11,19,39
Eaton Laboratories	40
Charles E. Frosst & Co.	30
Howmedica, Inc.	7
Pelton & Crane Company	9
Procter & Gamble	3
Professional Pharmaceutical	48
Weil Dental Supplies Ltd.	IBC
Whaledent International	16

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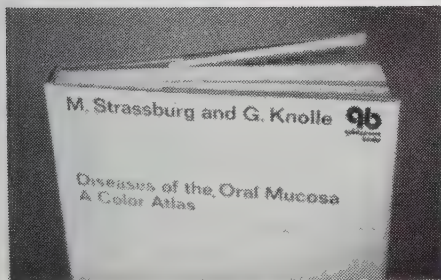
by Prof. Manfred Strassburg, Dr. med. dent., and Prof. Gerdt Knolle, Dr. med. dent.

Practice of dentistry provides daily opportunities for observation of changes in the oral mucosa. Observation, however, is not equivalent to recognition. Recognizing and understanding visible changes is more difficult than would be anticipated at first glance. This is especially true in relation to the oral mucosa, a site which may be affected by numerous exogenous and endogenous factors. The differential diagnosis of benign and serious diseases is further complicated by the fact that the mucosa, in contrast to the skin, reacts with relative uniformity to a large variety of stimuli.

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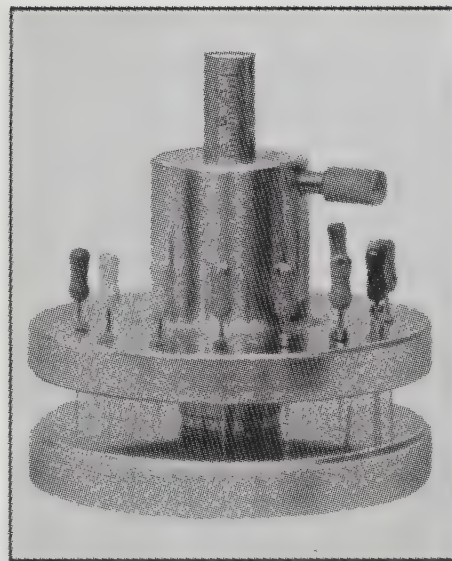
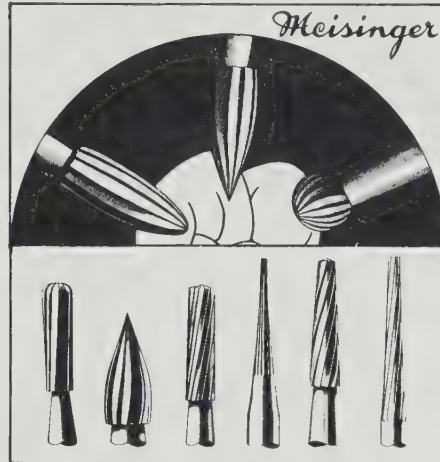
This is precisely the point at which this atlas will be useful to you. Its large number of illustrations has been taken from dental practices, to be used in dental practices. The pictures reflect many years of experience at large teaching institutions. Almost 450 true-colour illustrations provide you with examples of the appearance of many diseases of the oral cavity and surrounding tissue, and make this book a text of constant value.

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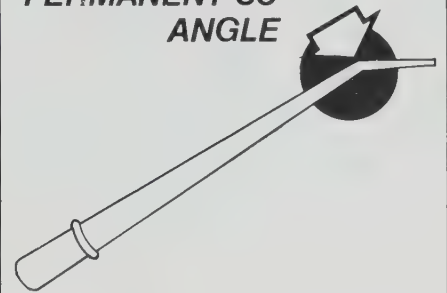
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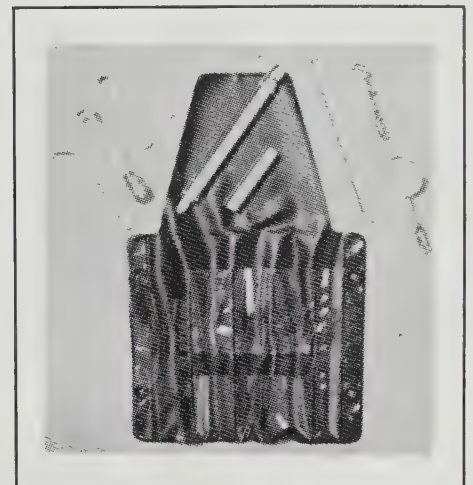


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1. Novak, A.J.: *Oral Surg.* 34:34, July, 1972.



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QUEBEC DENTAL SURGEONS ASSOCIATION BOYCOTTS PLAN

President Claude Chicoine of the Quebec Dental Surgeons Association has confirmed the QDSA is continuing to boycott the Quebec government's free welfare dental plan, inaugurated January 1, and only emergency treatment is being given. The Association has criticized the government program because it discourages preventive dentistry and encourages the pulling of teeth.

"Under the plan, welfare recipients are allowed only one partial examination a year, no preventive treatments and only one cleaning per year," Dr. Chicoine says. "Should a second cleaning be required, authorization must come from the Quebec Health Insurance Board rather than the treating dentist. We want a more comprehensive plan including more preventive dentistry, with a fee structure negotiated - not imposed."

The government's payment structure for the program is 53 per cent lower than the Association's fee guide and will "barely cover operating expenses" the Association says.

ALBERTA ALLOWS INCORPORATION OF A PRACTICE

As early as March of this year, Alberta dentists along with physicians, lawyers and architects will be allowed to incorporate their practices. Bill 68, the Incorporation of Practices Bill, was approved during the last sitting of the Alberta Legislature and the Companies Branch is now establishing regulations under the Bill. The dental by-laws will have to be approved by the Alberta Dental Association Board before going to the Alberta Cabinet. It is anticipated that the Companies Branch will set registration fees of \$75-85 and the professional organizations will each establish an incorporation registration fee of about \$100 and an annual fee of \$25.

QUEBEC GOVERNMENT PLANS FOR DENTAL NURSES

It has been reliably reported that the Quebec government intends to open a pilot school for Saskatchewan-type dental nurses in 1976. Four dental hygienists have enrolled in the Saskatchewan training program, with the intention of returning to teach in the new school.

MANITOBA PEER REVIEW

During the past year, the Manitoba Dental Association has accepted more responsibility for protecting the public interest through its Peer Review mechanism. In 1975, two licenses were revoked, four practices investigated and two dentists directed to refresher courses.

The Association intends to initiate programs for all members in such areas as radiation, sterilization and diagnosis, as a type of preventive measure.

L'ASSOCIATION DES CHIRURGIENS DENTISTES DU QUEBEC BOYCOTTE LE REGIME

Le Dr Claude Chicoine, président de l'Association des chirurgiens-dentistes du Québec confirme que l'ACDQ continue à boycotter le régime gratuit d'Assistance sociale dentaire du Gouvernement du Québec inauguré le 1er janvier, et n'assure que le service des traitements d'urgence. L'Association critique le programme du gouvernement qui décourage la dentisterie préventive et encourage l'extraction des dents.

"En vertu de ce régime, les bénéficiaires n'ont droit qu'à un examen partiel par an, ne reçoivent pas de traitements préventifs et leurs dents ne sont nettoyées qu'une fois par an", déclare le Dr Chicoine. "Si un deuxième nettoyage est nécessaire, l'autorisation doit venir de la Régie d'assurance-maladie du Québec et non du dentiste traitant. Nous désirons obtenir un régime plus complet, comprenant plus de soins préventifs et nous désirons également que la structure de rémunération fasse l'objet de négociations, au lieu de nous être imposée". L'Association ajoute que les paiements du gouvernement pour ce programme sont inférieurs de 53% au guide des honoraires de l'Association et couvriront à peine les frais généraux.

L'ALBERTA AUTORISE LA CONSTITUTION EN SOCIETE DE CABINETS DENTAIRES

Dès le mois de mars de cette année, les dentistes de l'Alberta, ainsi d'ailleurs que les médecins, les avocats et les architectes, seront autorisés à constituer leur pratique en société. La loi 68 sur la "constitution en société des cabinets" a été approuvée lors de la dernière session de l'Assemblée législative de l'Alberta et la Division des compagnies établit actuellement des règlements aux termes de ladite loi. Les règlements concernant l'exercice de l'art dentaire devront être approuvés par le Conseil de l'Association dentaire de l'Alberta avant d'être présentés au Conseil des ministres. On prévoit que la Division des compagnies fixera les droits d'inscription à \$75-85 et que les organismes professionnels fixeront les droits de constitution en corporation à une centaine de dollars, plus une cotisation annuelle de \$25.

LE GOUVERNEMENT DU QUEBEC ENVISAGE LA CREATION DE PROGRAMMES SPECIAUX POUR LES INFIRMIERES DENTAIRES

On apprend de source sûre qu'en 1976 le gouvernement du Québec créera une école-pilote pour les infirmières dentaires sur le même modèle que celle de la Saskatchewan. Quatre hygiénistes se sont inscrites au programme d'instruction en Saskatchewan dans le but de pouvoir enseigner à la nouvelle école à leur retour.

MANITOBA: SYSTEME D'EVALUATION PAR LES PAIRS

Au cours de l'année passée, l'Association dentaire du Manitoba a accepté une plus grande responsabilité en vue de protéger le public au moyen de son système d'évaluation par les pairs. En 1975, deux permis ont été révoqués, des enquêtes ont été faites pour contrôler les procédures de quatre cabinets dentaires, et on a demandé à deux dentistes de suivre des cours de recyclage.

L'Association envisage la mise sur pied de programmes pour tous ses membres dans les domaines de radiation, stérilisation et diagnostic, qui constitueraient en fait une série de mesures préventives.

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Editorial

Self-interested education in prevention	56
---	----

Special Features

Viewpoints on dental education:	
The future of dental education in Canada — Harrop and Mackenzie	69
Effects of teacher training — Mutter	78
CDA Task Force on Continuing Education	81
Federal income tax returns by dentists	87

Regular Features

Dentistry in the news	58
Les actualités dentaires	64
Deaths	62

Articles

Intradermal naevus: report of a case — Frydman	92
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Classified advertising

Advertisers' index

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*Information about other meetings
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Canadian Dental Association
1976, Edmonton, Alta, Sept. 12-15.

Fédération Dentaire Internationale
1976, Athens, Greece, Sept 26-Oct 2;
1977, Toronto, Oct 22-28.

Canadian Meetings

Ontario Dental Association, at Four
Seasons Sheraton Hotel, Toronto. May
9-12, 1976. Mrs. W. C. Durham, 230
St. George St., Toronto, Ont. M5R
2P1.

Les Journées Dentaires du Québec,
at Queen Elizabeth Hotel, Montreal.
May 12-16, 1976. Dr. M. R. Lang,
5171 Decarie Blvd., Montreal, Que.
H3W 3C2.

**Atlantic Provinces Dental Conven-
tion**, at Fredericton, June 6-9, 1976.
P. F. Manson, 564 Queen St, Frederic-
ton, N.B. E3B 1B9.

Canadian Society of Oral Surgeons,
at Halifax. July 24-27, 1976. D. J.
Murphy, 1733 Beech St., Halifax,
N.S.

Canadian Occlusion Symposium, at
Chateau Lacombe, Edmonton. Sept
12-13, 1976. J. N. Nasedkin, #415,
925 West Georgia, Vancouver, B.C.
V6C 1R5.

**Montreal Dental Club Pre-
Convention Seminar**, at Montreal.
Nov 13-14, 1976. Miss M. Komar-
nicka, 4166 St. Catherine St. W.,
Montreal 215, Que.

Montreal Dental Club Fall Clinic, at
Montreal. Nov 15-17, 1976. Miss M.
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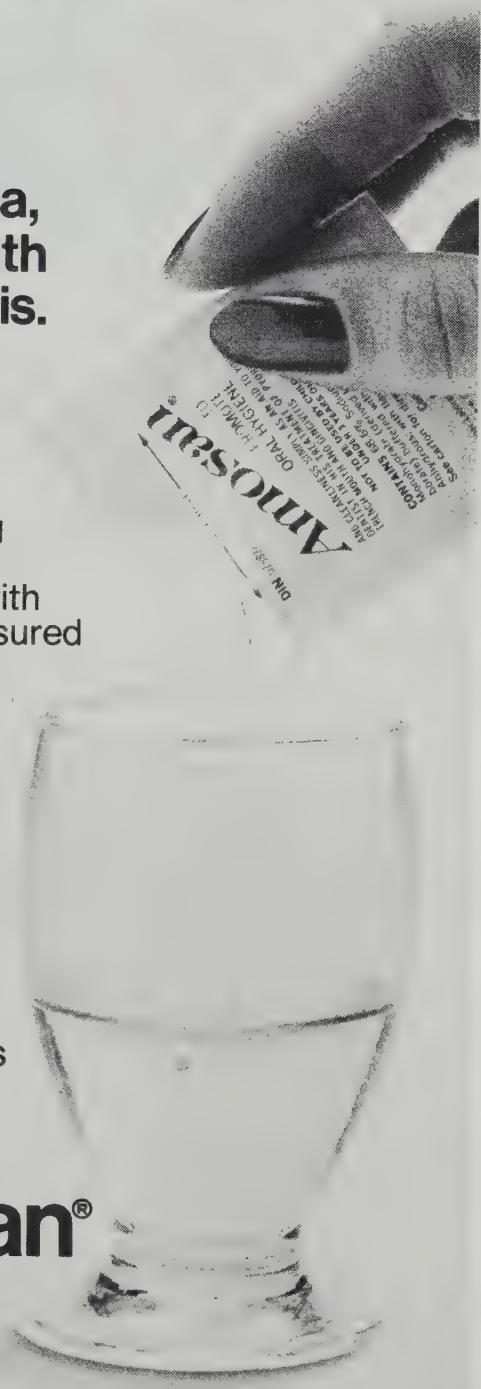
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EDITORIAL

Self-interested education in prevention

It's time to tell the public — loudly and clearly — that responsibility for oral health doesn't rest solely with dentists and auxiliaries, the availability or non-availability of the dental team, the number of dentists per capita or even, whether fees are high or low. Just as the federal government is now starting to emphasize its "new perspective on health care" and the responsibility of the public for many of its own diseases, so organized dentistry must put more of the onus for the dental health of the nation right where it belongs — on the individual. And, that means public education in prevention.

This summer during the National Convention in St. John's, Newfoundland, the press who were interviewing Association executives and speakers kept reminding everyone of the abysmal state of Newfoundland dental health, the lack of dentists and of low cost dental care to reverse the situation. Dentistry's failure to provide this manpower at bargain rates was uppermost in their minds. It was pointed out by such spokesmen as then president Fred Reid, that the tools for tooth brushing and flossing don't cost much and that dental health begins right in each person's mouth. The press, intent on getting a more exciting story, did not report what he said for the public to read or hear. The press failed its audience.

The public must be told and yes, sold, on the idea that all the money in the world won't buy them basic dental health. Dental health starts in front of their own wash basins with tooth brush, paste and floss in hand. It starts at their own table with the food they eat and the food on which they snack.

Dentists who disclaim any responsibility for mass media public education in these home truths are probably being short-sighted. If people continue to believe that their poor dental health is the result of dentistry's failure to provide dental care then the profession may well find government-controlled dentistry on its doorstep, sooner rather than later.

Everyone must be involved because the educational push needed affects everyone. The need goes beyond the basic program which the Canadian Dental Association has been able to mount as a source of pamphlets and films and as organizer of Dental Health Month (Week). The Association can be the spearhead of the campaign but it requires money and consistent support from every member, all provincial bodies, the faculties and students and the dental trade.

Dentistry can't be expected to foot the entire bill for the amount of public education which is necessary to change people's habits and way of life. The profession can make a start, however, and be responsible for keeping the ball rolling. By taking the task in hand now, momentum for change can stay with the profession.

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ANTI-INFLATION BOARD SEMINAR HELD IN OTTAWA

CDA was represented by executive director, Dr. W.G. McIntosh, at an Anti-Inflation Board Seminar, January 7, in Ottawa. Unfortunately, the professional session lasted only 30 minutes out of the entire day and many questions were left unanswered.

The following appear to be the main points of interest to dentists: maximum emphasis will be placed on voluntary compliance with a minimum of detailed regulations, reporting and surveillance; however, there will be statutory enforcement for groups such as dentists. Mandatory guidelines will apply to both professional firms and self-employed, individual practitioners.

The income of professional firms will be permitted to increase by amounts necessary to recover increased costs and to improve the income of the members of the firm by the same amount that would be available to other salaried employees. Increases in pro-

fessional incomes will be permitted as the result of increased workloads. Calculations of "apparent excess revenue, adjusted operating profits, allowable costs and adjusted excess revenue" are more complicated for professional firms consisting of two or more practitioners than they are for individual practitioners.

To comply with the guidelines, a professional must demonstrate, in setting his fees, that he has adhered to the following rules: (1) his fees do not exceed those charged on October 13, 1975 by more than the amounts estimated to be necessary to off-set net increases in allowable costs that accrue after October 13, 1975 plus "income improvement amounts." This income improvement amount is the lesser of \$2,400 or 10 per cent of the base year net revenue. This 10 per cent is made up of the 8 per cent basic protection factor plus 2 per cent productivity fac-

tor plus or minus an adjustment factor for experience. (2) he uses the same billing practices as at October 13, 1975.

Dentists who have a fiscal year which is the calendar year, use 1974 as the base year and 1975 is the first compliance year.

All speakers at the seminar reiterated many times in response to questions that the government is looking for voluntary compliance with the guidelines and "what is reasonable under the circumstances." Since all dentists will be required to report their compliance with the guidelines on a special form, care must be taken in the initial reporting.

For copies of the Act, Regulations and Highlights, contact your nearest Canada Taxation District Office, or write P.O. Box 1750, Postal Station B, Ottawa, K1P 6B1.

FRENCH TO BE A REQUIREMENT FOR FOREIGN PROFESSIONALS IN QUEBEC

New regulations submitted to the Quebec Cabinet last month stipulate that professional corporations will not be allowed to consider requests from foreign professionals for licences to practise in the Province of Quebec unless the applicant can demonstrate a working knowledge of French. Applicants will have to show documentary proof or take a special language test to document their knowledge of Quebec's official language.

Professionals immigrating to Quebec from other countries will be able to get a provisional licence for one year, during which time they must develop a working knowledge of the lan-

guage. The regulations define "working knowledge" of French as "the ability to communicate verbally and in writing in French." To avoid having to pass a test, the person seeking a licence from one of Quebec's 38 recognized professional corporations can do one of three things:

1. Submit a certified original copy of school diplomas or certificates showing that he was, for at least three years from high school on, a full-time student in a French-language institution;
2. Prove that he already holds a certificate from the French Language Board.

3. Prove that, before the regulations came into effect, he had obtained a language certificate under the Act Concerning Admission to the Study and Exercise of Professions.

Standardized tests, drafted by a three-man committee, will be necessary for all applicants who cannot otherwise prove they have a working knowledge of French. However, effective July 1, 1980, these tests will be replaced by tests adapted to the technical vocabulary of the various professions.

These new regulations are expected to take effect July 1, 1976.

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T-SHIRTS FOR SALE

University of Toronto dental students have enlivened February as Dental Health Month through the sale of T-shirts with a four-color design, "Your Teeth For a Lifetime." The T-shirts have been a big hit with all who've seen them.

The product of the fertile imagination of Thunder Bay dentist, William Hettenhausen, the sale of the shirts has been mounted by Dr. Maret Truuvert, associate professor in the Department of Preventive Dentistry at U of T and the Student Chapter of the American Society for Preventive Dentistry. Profit from the sales will go to the Canadian Fund for Dental Education.

A number of provincial Dental Health Month chairmen may also have shirts for sale and will be ordering in bulk if this is warranted by interest. Sales will continue after Dental Health Month. Estimated price is \$4.00 each, but you may be asked to pay a few cents more to cover extra costs and provide a small profit for your province's Dental Health Month fund.



Art deco is all the rage and dentist Bill Hettenhausen's "Your Teeth For a Lifetime" design is right in style — clenched teeth, rose and all. Fourth-year Toronto student, Allan N. Ennis, models one of the T-shirts — a great idea for a fun fad.

If you want to order direct, contact: Dr. Maret Truuvert, associate professor, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto M5G 1G6.



Anna Spencer

CDA Appointment

The Canadian Dental Association is pleased to announce the appointment of Anna Spencer as Manager of Advertising Sales/Production for the Journal of the Canadian Dental Association.

Ms. Spencer has had extensive experience in the publishing business. Prior to her appointment at the Association, she was business manager of the Product Card Division of Southam Business Publications Ltd.

Ms. Spencer will be responsible for all advertising sales to the Canadian dental trade and related industries, as well as providing production services for all clients.

Dentists push CFDE over the top

Nothing, not even a prolonged mail strike, stops dentists from reaching an objective!

Early this year the Canadian Fund for Dental Education trustees set a target of \$40,000 for personal gifts from dentists. Everything was going just great until the mail dried up early in October, "CFDE Month." Weeks of nail biting went by and suddenly things began to pop, but would there be time?

The answer is a resounding YES. "At the year end we had passed the 1975 objective with a record smashing total of over \$41,000, or 17 per cent more than in the previous year. A big *THANK YOU* to the hundreds of doctors across the country whose generosity made it all possible," said Murray McDonald, the Fund's Executive Director.

CONTINUING EDUCATION COURSES

University of Toronto, Faculty of Dentistry

The treatment of the patient with maxillofacial defects. May 20-21, 1976. The aim of this course is to provide dentists, dental specialists and graduate dental students with an exposure to the nature of maxillofacial anomalies whether they be congenital, traumatic or post-surgical in nature, and the role that the clinician can play in rehabilitating these patients. This multidisciplinary approach will be presented by dental and medical specialists in the fields of pathology, radiology, oral and head and neck surgery, orthodontics, speech pathology, dental materials science and prosthodontics.

Under the general direction of Professor G. A. Zarb

16 Credit Hours A.G.D.

Tuition Fee: \$150.00

Applications should be sent to Dr. G. S. Beagrie, Director, Division of Postgraduate Dental Education, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto, Ont. M5G 1G6.

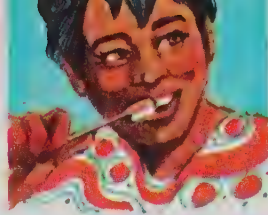
McGill University Faculty of Dentistry

The Faculty of Dentistry at McGill University has scheduled a continuing dental education course in orthodontics for April 23-24, 1976. The course will deal with "Current Orthodontic Concepts and Treatment Procedures for the General Practitioner" and will be held at McGill. Dr. M. D. Rennert is course director and the tuition is \$100.

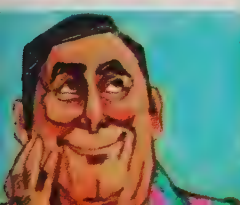
For further information contact: Dr. John W. Stamm, Co-ordinator of Continuing Education, Faculty of Dentistry, McGill University.



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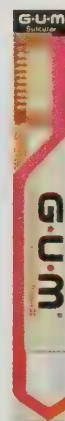
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CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on December 31, 1975:

<i>Guaranteed Fund</i>	\$12.237;
<i>Fixed Income Fund</i>	\$16.128;
<i>Common Stock Fund</i>	\$25.911.

Total assets (market value) of the plan were \$20,695,805.15.

The following portfolio purchases and sales occurred during the preceding month: bought, 1,600 units Bank of Nova Scotia, 1,000 units Dome Mines, \$400,000 Bank of Canadian National discount note, \$100,000 bond Imperial Oil, \$75,000 GIR. Sold, 14,193 units Bank of Nova Scotia, 41 units Donaldson, Lufkin and Jenrette Inc., \$200,000 Hudsons Bay interest bearing note, \$400,000 John Labatt interest bearing note.

For further information write to: CDA-sponsored Pension and Insurance Plans, 14 Madison Ave., Toronto, Ont.

DEATHS

Blackwell, Roy W. 79. Kincardine, Ont. Royal College of Dental Surgeons of Ontario, 1917.

Boisclair, Donat. 80. Montreal. University of Montreal, 1921. 26-11-75.

Booth, Allen. 27. Fort St. James, B.C. University of Bristol, England, 1972. 2-12-75.

Breton, Louis-Marie. 35. Montreal. University of Montreal, 1969. 8-11-75.

Craig, John Joshua. 87. Peterborough. Royal College of Dental Surgeons of Ontario, 1916. 28-12-75. Survived by Georgia (wife); Jack and Jim (sons); and Barbara (daughter).

Findlay, Robert Murray. 80. Toronto. Royal College of Dental Surgeons of Ontario, 1923. 22-12-75. Survived by Ethel Catherine (wife); Douglas and David (sons).

Jarvis, Albert. 59. St. Catharines, Ont. University of Toronto, 1950. 12-12-75. Survived by Bernice (wife);

John and Paul (sons); and Mrs. Julie Hagedorn (daughter).

Lessard, J. Andre. 81. Riviere-du-Loup, Que. University of Montreal, 1919. 6-4-75.

Moreau, Arthur. 64. St. Catharines, Ont. University of Montreal, 1939. 26-11-75.

Munro, Archibald Donald C. 35. Ottawa. Guy's Hospital, London, 1965, and Dalhousie University, 1969. 27-10-75.

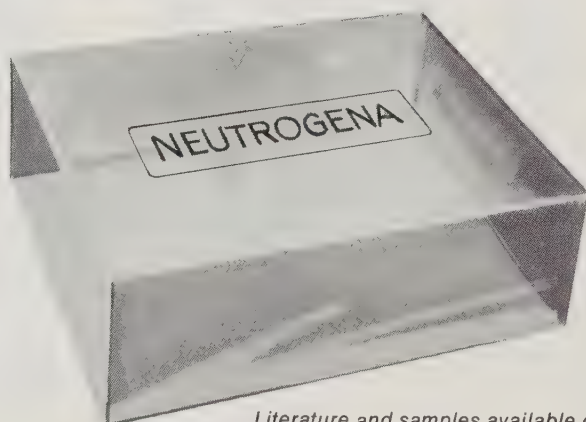
Paterson, Jesse George. 75. Toronto. Royal College of Dental Surgeons of Ontario, 1924. 9-12-75. Survived by Daisy (wife), and Ken (son).

Shand, William Alvin. 59. Toronto. University of Toronto, 1941. 28-12-75. Survived by Betty (wife); Billy and Jamie (sons); and Susan (daughter).

Summers, Jack. 65. Coronation, Alberta. University of Alberta, 1940. 23-11-75. Survived by Pearl (wife), and Jaron (son).

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ADVERTISERS' INDEX

Amalgamated Dental	76
Ash Temple	54
Astra Pharmaceuticals	OBC
Block Drug	59,68
John O. Butler Co.	61
L. D. Caulk Co. of Canada	73
Colgate-Palmolive Ltd.	65
Cooper Laboratories	56
Dentsply International	52,63,67,86
Eaton Laboratories	IFC
Charles E. Frosst & Co.	77
The Hygienic Dental Mfg. Co.	55
Kodak Canada Ltd.	IBC
The C. V. Mosby Company, Ltd.	85
Nobilium Products of Canada	80
Pfingst & Company, Inc.	79
Procter & Gamble	51
Professional Pharmaceutical	62
Ticonium Company	83
Whaledent International	57

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LA CONNAISSANCE DE LA LANGUE FRANCAISE SERA EXIGEE POUR L'OBTENTION D'UN PERMIS PROFESSIONNEL

De nouveaux règlements, soumis au cabinet des ministres du Québec le mois dernier, stipulent que les corporations professionnelles ne seront pas autorisées à étudier les demandes de permis d'exercice au Québec provenant de professionnels étrangers, à moins que le candidat ne puisse faire preuve d'une connaissance pratique de la langue française. Les candidats devront présenter des preuves documentaires à l'appui ou encore passer un examen spécial pour prouver leur connaissance de la langue officielle du Québec. Les professionnels qui immigrent au Québec en provenance d'autres pays, pourront obtenir un permis provisoire pour un an, au cours duquel ils doivent acquérir une certaine connaissance de la

langue française. Les règlements définissent la "connaissance pratique" du français comme "la capacité de communiquer en français verbalement et par écrit". Pour être dispensé de l'examen, une personne désireuse d'obtenir un permis de l'une des 38 corporations professionnelles du Québec peut choisir entre l'une des trois solutions suivantes:

1. Présenter une copie originale certifiée ou des certificats indiquant que pendant au moins trois ans après l'école secondaire, elle était étudiante à plein temps dans une institution de langue française.
2. Prouver qu'elle a déjà obtenu un certificat de l'Office de la langue française.

3. Prouver qu'avant la mise en vigueur des nouveaux règlements, elle avait obtenu un certificat de capacité linguistique, en vertu de la loi régissant l'admission à l'étude et à l'exercice des professions.

Un examen normalisé, rédigé par une comité de trois membres, doit être subi par tous les candidats qui ne peuvent normalement prouver qu'ils ont une "connaissance pratique" du français. Cependant, à partir du 1er juillet 1980, ces examens seront remplacés par des épreuves adaptées au vocabulaire technique des diverses professions.

On prévoit que ces nouveaux règlements seront mis en vigueur le 1er juillet 1976.

LE DIRECTEUR EXECUTIF ASSISTE A LA REUNION DU COMITE DE L'OMS A GENEVE

Le Directeur général de l'Organisation mondiale de la santé vient de nommer le Dr William G. McIntosh, directeur exécutif de l'Association dentaire canadienne, membre du comité consultatif des experts sur la santé dentaire de l'OMS. Sa première mission a consisté à participer à un comité de spécialistes sur la planification et l'évaluation des services de la santé dentaire publique, convoqué à Genève du 10 au 14 novembre 1975.

Ce comité avait pour objectif la rédaction d'un rapport à l'OMS sur les principes et méthodologies de planification et d'évaluation des services communautaires de santé dentaire. Se-

lon la politique typique de l'OMS, il s'agissait de mettre l'accent sur les stratégies s'appliquant au pays en voie de développement.

Faisaient également partie du comité: le Dr Mario M. Chaves, représentant de la Fondation W. K. Kellogg pour l'Amérique latine et le Brésil, qui exerçait la fonction de président; le Dr John C. Greene, Chef des Services dentaires, Services de la Santé publique des États-Unis, Département de la santé, de l'éducation et du bien-être; le Dr L. Hanachowicz, Dentiste consultant pour le ministère français de la santé; le Dr G. Rizali Noor, Directeur des services de santé dentaire, Ministère de la santé, Indonésie; le Profes-

seur A. I. Rybakov, Directeur de l'Institut central de recherches en stomatologie, Ministère de la santé, URSS; le professeur Geoffrey L. Slack, London Hospital Medical College Dental School, Royaume-Uni.

Le Dr Louis J. Baume, vice-président de la Fédération dentaire internationale et président de l'Institut de médecine dentaire de l'Université de Genève, participait à titre de représentant de la FDI.

Après l'approbation de l'Assemblée générale de l'OMS, le rapport rédigé par le comité sera traduit, distribué à tous les pays membres et mis à la disposition du public en tant que rapport technique de l'OMS.



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L'Association Dentaire Canadienne.



La clinique d'automne du Montreal Dental Club célèbre son 50ème anniversaire

La clinique d'automne du Montreal Dental Club a célébré son 50ème anniversaire en novembre 1975. Cette 50ème clinique d'automne, qui a eu lieu du 17 au 19 novembre à l'Hôtel Mont-Royal, a présenté un nombre de conférenciers et de démonstrations cliniques remarquables ainsi qu'un programme social sans pareil.

Le point saillant des trois jours de réunion a été le déjeuner d'anniversaire, rendant honneur aux dentistes qui font partie du Montreal Dental Club depuis cinquante ans ou plus. Le Dr H. Lindsay Mussells, président de l'Asso-

ciation dentaire canadienne et ancien président du Montreal Dental Club a prononcé une allocution devant les membres présents et offert des cadeaux aux 20 dentistes qui fêtaient leur long terme d'adhésion au Club. Il s'agit des Drs J. W. Abraham; H. G. Benson; E. T. Bourke; A. W. Burbank; W. C. Bushell; C. R. E. Cassidy; W. E. Charland; E. T. Cleveland; A. D. Crowe; W. T. Donnelly; J. C. Flanagan; G. M. Hale; D. P. Kelly; I. K. Lowry; D. MacRae; C. Morris; W. S. Phelps; H. E. Purcell; A. D. Richardson; et P. H. Rowe.

T-shirts à vendre "vos dents pour la vie" en technicolor

Les étudiants en art dentaire du l'Université de Toronto ont animé le mois de la santé dentaire, soit février, grâce à la vente de T-shirts portant le dessin quadrichrome "Vos dents pour la vie". Ces T-shirts plaisent énormément à tous ceux qui les ont vus.

Due à l'imagination fertile du Dr William Hettenhausen, dentiste à Thunder Bay, la vente de ces gilets a été promue par le Dr Maret Truvert, professeur associé du département de dentisterie préventive de l'U de T et la section des étudiants de l'American Society of Preventive Dentistry. C'est au Fonds canadien pour l'éducation dentaire que reviendront les bénéfices réalisés par les ventes. De nombreux

présidents provinciaux du Mois de la santé dentaire les mettront également en vente et les commanderont en vrac si le public fait preuve d'un intérêt suffisant. Les ventes se poursuivront après la fin du Mois de la santé dentaire. Le coût est d'environ \$4.00 chacun mais on vous demandera peut-être de payer quelques cents de plus pour couvrir les frais divers et assurer un petit bénéfice pour le fonds provincial du Mois de la santé dentaire.

Pour passer directement une commande, prière de s'adresser au: Dr Maret Truvert, Professeur associé, Faculté dentaire, Université de Toronto, 124 rue Edward, Toronto M5G 1G6.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 décembre, 1975:

<i>Fonds avec garantie</i>	\$12.237;
<i>Fonds à revenu fixe</i>	\$16.128;
<i>Fonds d'actions ordinaires</i>	\$25.911

L'avoir total (valeur marchande) du régime se montait à \$20,695,805.15.

Au cours du mois précédent, les transactions ont été les suivantes: achat, 1,600 units Bank of Nova

Scotia, 1,000 units Dome Mines, \$400,000 Bank of Canadian National discount note, \$100,000 bond Imperial Oil, \$75,000 GIR. Vente, 14,193 units Bank of Nova Scotia, 41 units Donaldson, Lufkin and Jenrette Inc., \$200,000 Hudsons Bay interest bearing note, \$400,000 John Labatt interest bearing note.

Pour de plus amples renseignements, veuillez écrire à CDA-sponsored Pension and Insurance Plan, 14 Madison Ave., Toronto, Ont. M5R 2S1.



A. Vaillancourt

Nouvelle nomination à l'université de Montréal

L'université de Montréal annonce la nomination de A. Vaillancourt comme associé au doyen de la Faculté de Dentisterie. Dr. Vaillancourt est professeur adjoint en Dentisterie de Restauration et responsable pour la section de prosthodontie de la Faculté. Il est aussi président du comité des services dentaires de l'Ordre des dentistes du Québec.

Dr. Vaillancourt est diplômé de l'université de Montréal et de l'université d'Ohio.

Société canadienne des chirurgiens buccaux

La Société canadienne des chirurgiens buccaux vient d'élire les membres de son comité exécutif; ceux-ci siégeront jusqu'à la réunion annuelle de la Société en 1977. Il s'agit des Drs F. W. Lovely, Halifax, président; G. Maranda de Québec, futur président; D. S. Precious, Halifax, secrétaire; et J. H. Gryfe, Weston, Ontario, trésorier. Le Dr S. M. Claman de Winnipeg est l'ancien président.

Conférence de l'AIADC

Le Conseil d'accréditation de l'AIADC vient d'annoncer la remise de la conférence "Considérations futures pour les éducateurs d'assistants dentaires au Canada".

La conférence, qui devait avoir lieu cette année, sera tenue à Edmonton du 23 au 26 juin 1976. Grâce à ce délai, le Conseil espère obtenir un plus grand appui financier ainsi que le temps de préparer un programme plus étendu.

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*Reference available on request.

The future of dental education in Canada

T. J. Harrop, LDS, DDS, MS, PhD
Vancouver

R. S. Mackenzie, DDS, MS, PhD
Gainesville, Florida

*The Walrus and the Carpenter
Were walking close at hand;
They wept like anything to see
Such quantities of sand;
If this were only cleared away,'
They said, 'it would be grand!'*
Lewis Carroll

The beach scene referred to above is analogous to the situation confronting the dental profession with the extent of dental problems in today's population. (Everyone can see the problems, but no one knows how to get rid of them.) Continuing as we are at present, resolving the problems remains a Herculean task beyond man's capabilities. Certainly, there can be no doubt in the minds of responsible individuals that the problem of dental disease in our society is staggering.^{1,2} We know that if the number of dentists were doubled or even tripled, the dental needs of the population could not be handled completely.^{3,4} And since the methods and structures of the past and present have not been successful, we must find new ways. The public is becoming increasingly aware of its prerogatives, and consequently health professionals are being held more accountable for their actions.

Great changes are occurring in all aspects of society. Values and demands are modified constantly, not only due to the nature of social changes but also to the staggering rate of these changes.⁵ The pressures of the challenges presented by these factors have been felt by universities, dental societies, and municipal, provincial and federal govern-

ments. All of these structures must contribute to meeting the challenges.

Universities are the institutions charged by society with objectively analyzing social problems for long-range solutions.⁶ Dental faculties, as part of the university, must provide counsel on alternative solutions and their consequences. Educators must rise to meet the challenges of change by marshalling the necessary resources, methodology, manpower and motivation for guiding our dental health care delivery system. Are the faculties capable of meeting these challenges? We submit as they are presently functioning they are not.^{7,8} Dental faculties have not taken the time to study the issues thoroughly. They are resistant to change and tend to waste resources through petty disagreements and duplication of effort. The decision for change in dental educational system should *not* be on the basis of political power, partisanship, or the prestige of popular professionals who are proponents of particular positions, but rather changes should be sensibly planned on the basis of objective examination of evidence that establishes the merits of all possible patterns of action.

The purpose of this article, therefore, is to encourage dental faculties to work together with organizations — academic, political and professional — to explore the alternate pathways to overcoming the problems in the dental care delivery system and to create an educational system congruent with the needs of the Canadian people.

Social factors

Before embarking on a program of change, dental faculties must consider certain factors: (1) needs as well as demands of the population, (2) population growth and dis-

tribution patterns, (3) resources of the country, (4) future developments in science and technology, and (5) the students themselves.

Needs and demands

It is virtually impossible to evaluate current needs and demands of the population. Society will always demand less than it actually needs and will always get less than it demands of dental care. But through legislation or other means, more of society's needs will be translated to demands, and more of these demands will be met than is presently the case. Frequently it is stated that "it is not the current *demand* for dental care, but the existing *need* for dental care, which must form the basis for manpower planning."⁹ The dental needs of the Canadian people must be carefully analyzed and defined in light of potential technological change and relative socio-economic impact.

Population growth

Accompanying the problem of needs and demands is a problem of geography. Canada is unique among western nations, with its vastness and its widespread population. These factors must be carefully assessed when planning a health care system. LaLonde¹⁰ contends that dental services are not equally accessible to all segments of the population due to high patient cost of dental care, shortage of dental professionals, and maldistribution of available manpower. A few large cities service widespread rural areas. Increase in the population from 22 to about 30 million by the end of the century, coupled with increases in the demands (encouraged or developed by fringe benefits such as prepaid dental plans), will force Canadian dentistry to accept the challenge of delivering better quality dental care to more people. At the same time, unless health service planners rise to the challenge, the great problem of geographic isolation of many communities will be accentuated by increased appreciation for health without a concomitant increase in the availability of services.

Resources

The Canadian government is anxiously examining the escalating costs of health care systems, and dental health care is no exception. Only so much of the tax dollar can be spent on dental health, and its benefits to society must be weighed against benefits accrued from other public health endeavors. If dentistry wants to compete for its share of the tax dollar, it should describe benefits gained from dental care in terms that are more meaningful to the public, such as productivity lost from work due to dental disease, the degree of discomfort and suffering of individuals, and the benefits derived from early detection and treatment of dental and systemic diseases. It must also demonstrate the ability to solve these national problems economically.

National co-ordination is difficult to achieve in the present system. With each province having an autonomous health care program, provinces are unable to take advantage of national co-operation. The national sharing of ideas and resources and reduction of costs due to elimination of duplication of systems and effort will lead to more equitable distribution of health benefits to every Canadian.

Good health of all Canadians is a national benefit. Illness results in a reduction of the country's gross national product, and is therefore of concern to all. With increased mobility of the population, provincial boundaries create inequities. A person who has paid taxes for many years in one province could conceivably lose benefits by moving to another province. Frequently such a move is forced by national economic conditions or other occupational requirements. Thus in the public interest health benefits must be available to all in an equitable fashion.

In educating health professionals, a common core of information is taught. The sharing of resources related to instruction in this common core would lead to three important results. First, through national co-operation, a high quality core course (in dental histology, for example) could be suitably packaged and distributed to all schools at a much lower cost to the country than if 10 schools independently produced 10 dental histology courses. Similarly, courses in structure, properties, and use of dental materials could be developed and used, not only in dental schools but in technical or trade schools as well. Certainly, areas of disagreement on instructional content exist, but co-operation is based first on those areas where agreement does or can exist. In North America, for example, many operative departments (including three in Canada) are instructing their students in basic cavity preparation resulting from Project ACORDE (A Consortium on Restorative Dentistry Education). Project TAPPS, which promises similar advantages for paedodontics, is now under development through support by the U.S. Public Health Service.¹¹

Sharing of resources can reduce the cost of dental education. A national test item bank, reviewed by educational and subject matter experts, can produce more efficient and standardized testing. The high cost of a good evaluation system can be shared, instead of every school creating a mediocre system at a higher total cost. An outstanding system that tests clinical judgment and professional decisions as well as factual knowledge requires more resources than any one school can reasonably muster. An evaluation system as a national resource which still permits local autonomy in testing is within feasibility.¹²

The third result of sharing of resources is that national standardization of the educational system would permit students to move freely between geographic areas, and perhaps even among dental schools, in response to opportunities for service and learning. Students could participate in extramural care delivery in needy areas supervised by the nearest dental faculties without interrupting their formal education. Furthermore, this free movement of students geographically and among dental schools would result in a

broader sharing of methods and philosophies by faculties and a concomitant enrichment of the dental educational experience. Freer geographic movement of dental students is a relatively new idea and the multiplicity of its ramifications is relatively unexplored.

Advances in educational technology

A national testing and evaluation system would be useful in continuing education, enabling individual practitioners to be conversant with new developments and methods in dentistry.

Computers could be used not only to keep track of dentists and their needs in continuing education,¹³ but also to provide guidance to dentists in their learning. Based on the type of services rendered in an individual practice, the computer could assess the up-to-dateness of the dentist's relevant knowledge and direct him to readings and courses of study to enable him to better perform the services he typically renders.

The computer also has important implications for the predoctoral dental students. If a national computer system similar to the University of Illinois' PLATO (Programmed Logic for Automatic Teaching Operation — computer-based educational research laboratory at Urbana-Champaign) were used, core knowledge could be provided at reasonable costs, for example by microfiche in pathology. Entering examinations could also be put on the computer, written in such a fashion that the student couldn't begin his next course until his entry behavior was acceptable to the computer, i.e. he could not proceed to a higher level until his general knowledge was acceptable in prescribed core courses. A student's clinical judgment can be improved and systematically assessed through simulated clinical experiences. The scope of computer usage is limited only by the imagination of the faculty and programmers. Costs of these services (rental/terminal + cost of writing program + cost of training faculty) are minimal compared to the benefits accrued, particularly when they are widely shared.

Further innovative teaching methods using audiovisual equipment and videotape equipment could also be incorporated into an educational system to improve or increase the gross national product of dental manpower, providing always that *evaluation* is an integral part of the system. Now the problem of the vastness of a country such as Canada can be overcome by these methods. Educational satellites can be employed; telephone wires can be strung; computer terminals can be installed. This means that students in the northern part of Canada could be serving (at a given level) one segment of the country while continuing to develop knowledge and skills in dental care delivery. Extramural care delivery has been carried out successfully in needy rural areas of Guatemala by students while continuing to learn from dental faculties.¹⁴ New advances in educational technology can now make this approach feasible in a more geographically dispersed country such as Canada.

Students

Work-study — "Career lateralizing" and "career escalating" are two new concepts related to the movement of students in the educational system. Career lateralizing refers to students moving out of the educational system, usually temporarily, into public service. Career escalating, on the other hand, is when a student moves from one structured level in the system to another. Both emphasize the value of on-the-job experience. A student coming out of high school could enter a certified dental assistant program and serve the community as a dental assistant, and concurrently take some courses or even all the courses, to complete a level of competence in say, dental hygiene or medical nurse's aide. This flexibility in the system permits a student with genuine ability in health care delivery to continue in the system and become a nurse, physician or dentist. Obviously such education must include some residency requirements so that student learning may be observed and guided at crucial points in the learning process. Envisioning a smoothly running geographically dispersed health sciences centre, the opportunities for combining learning and service should be almost limitless for *all* students of the health professions. In a recent report entitled "A New School of Health Professions" the value of career lateralizing and escalating was discussed. "Career mobility, both vertical and lateral, is recognized as desirable for any profession, and efforts are being made to organize the allied health professions into such lattices."¹⁵

On-the-job experience, for a student who opts to lateral temporarily, has certain educational advantages. The opportunity: (1) greatly enhances his understanding of his profession of choice and its role in the total health care delivery system, (2) strengthens learning by permitting him to put into action some of the courses he has just finished in the core structure, (3) makes his courses more meaningful when he returns to his studies, and (4) allows him to earn while learning his chosen profession. It has always seemed such a waste when students between their third and fourth years of dentistry take summer jobs in mining, lumbering and fishing. While they are not fully qualified to practise all aspects of dentistry, they have skills which could be put to good use by serving in needy areas. If, for example, a student had finished all his paedodontic programs, then although he couldn't tackle complicated fixed bridgework, he could serve a preschool dental health clinic admirably. (We recognize that many provinces already use junior students, but more opportunities should be made available.)¹⁶

In the present day rigid system, a student, once committed to a career, has to complete it or feel that he has wasted part of his life; only when he has graduated from professional school can he enter an alternate career. Under the present system, perhaps one or two students in dental classes end up in basic research, administration or medical school. Another advantage of flexibility of career development is that students can better assess their interests and abilities before committing a great amount of time and energy to a career for which they are not suited. Further-

more, society gains by not allocating resources to the education of those who will either leave the health care delivery system or deliver subquality care. Career "escalating" would increase the efficiency of the total educational process.

Duplication — With the proposed increased flexibility in training manpower, reducing duplication of effort will be of paramount concern. Duplication and waste occur readily when provincial health programs, federal health programs, technical schools and universities, all teach or deliver health care. National co-ordination could eliminate duplication while taking advantage of the wide audience of students to produce superior quality instructional materials at a low per student cost. A national market encourages the involvement of private industry in the teaching process. With limited resources in dental schools for large scale instructional development, many aspects of instruction could be contracted out for bids from private enterprises, which would be more willing to produce high quality instructional materials for a market large enough to justify the initial investment.

Graduate studies — At the present time, graduate educational programs vary from school to school and province to province.¹⁷ There is a great potential savings in this area of high cost education through co-operation in resources and effort. The problem, as we see it, is that each university develops its own set of graduate programs based on the presence of certain personnel, i.e. if there is a particularly persuasive paedodontist in the faculty, he will receive the resources needed to develop a powerful paedodontic program; if there is a strong individual in fixed prosthodontics he obtains an extensive graduate program — in few instances have graduate program committees evaluated and integrated the needs of society (not the needs of the faculty) as a basis for allocating resources to graduate programs. In response to the public's needs, national co-ordination would foster a more rational approach to the output of dental schools concerning the number and type of specialists. Indiscriminate proliferation of expensive graduate programs reflects a general problem.

Educational effectiveness

The system has existed for far too long where an individual who wishes to teach can do so without *any* formal training in education. A dentist with several years private practice experience may be a good dentist, but that is not sufficient for being a good teacher. Likewise, a dentist with a master's degree in orthodontics, or a PhD in anatomy, is not necessarily proficient at teaching. Because of the importance of effective teaching, training in instructional processes should be mandatory for all faculty members, whether basic science or clinically oriented, whether part-time or full-time. Even over kindergarten and elementary teachers are trained in education!

Evaluation plays a crucial role in the effectiveness of educational programs. Students study what is required for examinations in order to graduate. Unfortunately, human nature being what it is, many students do little more than this. Consequently, examinations that test for isolated bits of factual knowledge result in rote memorization by students, with little effort to organize information for later use. For students who are motivated by immediate goals, memorization completely replaces reflection as a mode of study. Great amounts of time and energy are squandered by students passing tests that do little to ensure quality health care delivery. Tests in dental education must change from assessing memorization of facts to assessing understanding of information and ability to apply knowledge in solving clinical problems presented by patients. To produce a testing system that evaluates more than factual knowledge requires greater resources than are feasible for one institution to allocate. National co-operation in the development and sharing of materials for testing such processes as understanding and clinical judgment is one cost-effective way to solve the problem.

In addition to the use of tests in guiding the way students study, tests may also be used to make instruction more efficient for students with different backgrounds and abilities. It is obvious to almost everyone that students arrive in a professor's class with different levels of knowledge — yet little or nothing is done about this. The inefficiency of ignoring differences in knowledge and ability can be overcome by giving credit through examination, or by individualizing instruction so that the quick students are not held back by the slower learners. The amount of testing required for this approach is great and the sharing of resources at a national level would make it feasible.

Prevention — When technological breakthroughs in research occur, such as with preventive mouthwashes, more effective use of the CDA and its mechanism for dissemination of this information must be made. Rapid delivery of new discoveries to all dentists and their patients must be a major concern of dental faculties and organized dentistry. Prevention is of national importance and should not be restricted by provincial boundaries.

Despite the fact that we believe prevention holds the greatest promise, we have primarily been discussing treatment-oriented solutions. It is accepted that prevention is 16 times more effective than restorative treatment.¹⁸ Yet this country still lags in proven prevention procedures.

"... There is a paradox of everyone agreeing to the importance of *research* and *prevention* yet continuing to increase disproportionately the amount spent on treating existing illness. Public demand for treatment services assures these services of financial resources. No such public demand exists for research and preventive measures. As a consequence, resources allocated for research, teaching, and prevention are generally insufficient."¹⁹ Why? Unfortunately, dental schools are not permeated with an intensive



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acceptance of preventive philosophies.¹⁹ All too often, individual teachers display the attitude that real "bread and butter" dentistry is the cutting and restoring of teeth. Some feel that merely lecturing about prevention is sufficient. If the faculty members really believe that prevention is important, they must convince the student body by deeds and not words. Taken to the extreme, when a student touches a handpiece, or extracts a tooth, the profession has failed. For a dentist to become an effective motivator of preventive measures, he must be totally committed; every word, every action must reflect his underlying value system. Instead of dental faculties producing more and better "drill and fill" teams, let them emphasize even more the importance of the "brush and paint" crews, i.e. those who teach brushing and flossing, and apply fluorides and fissure sealants. At this time, the public should not be denied the benefits of the studies by McKay, Dean and Knutson, pioneers in fluoridation. If fluoridation is not acceptable to segments of society via water fluoridation, other methods must be promulgated, i.e. fluoridated milk,²⁰ fluoridated salt,^{21,22} fluoride tablets, and drops.²³

Dental health personnel should be trained to instruct patients in more extensive self-care. In a geographically dispersed country such as Canada, organized dentistry should be gearing up for a campaign to teach the public to recognize the early stages of dental disease, what to do for themselves, when to seek help, and whom to see. Through the medium of television, especially now with satellites beaming to far northern communities, the public should be educated and encouraged to accept more responsibility for their own health care, and even to provide their own early treatment of such diseases as gingivitis. Could we encourage pharmacies to dispense dental health advice as they are often called upon for medical advice? Physicians, nurses, and teachers, if motivated to accept a preventive philosophy of dental health care and given the correct educational material and courses, could be very influential in disseminating information on preventive dental care. The key to motivation of the public, however, still lies with the dental student.¹⁹ We recognize that changing attitudes and behavioral habits of society concerning their dental needs will, in turn, affect the pattern of dental care. The effecting of these attitudes and their resulting demands will be the responsibility of total-patient-care, health-oriented dentists.

Health orientation — In order to produce health-care-oriented dentists, admissions committees must be more selective. Their job would be easier if measures of criteria, predicting future professional performance of admitted students, were more reliable and clear. Unfortunately, criteria in the cognitive domain are used most frequently, those in the psychomotor domain only slightly, while those in the affective domain scarcely at all. If dental schools could predict how a student would perform in a dental health care role, admissions committees could admit students closer to the desired end product and thus reduce training costs. Co-ordination at the national level should encourage the al-

location of resources for measuring the performance of dental personnel. These measures would lead to better prediction of professional performance, thereby improving selection procedures and the overall educational process.²⁴

Continuing education — Dental schools should be encouraged to emphasize instruction that develops student habits for continuing learning after graduation.²⁵ For example, a neglected area is teaching students to learn from their own experiences with patients. For the most part, dentists learn from experience in practice in a slow, inefficient way. Some learn very little after the first year in practice. The relative quality of practices tends to deteriorate with time unless additional learning occurs. Self-improving dentists can be created by teaching students how to set learning goals and systematically gather information from patients that will help improve the care delivery for which the dentist himself is responsible. Curricular experiences that encourage dentists to share this type of information through study clubs and other facets of organized dentistry will expedite the incorporation of useful changes in dental practice.

Co-ordinating agency

Is Canada ready for a federally unified overall dental health program? John Hein,²⁶ Director of Forsythe Dental Dispensary, recommends, "... a comprehensive blueprint for the oral health field, or master plan for dentistry." LeClair²⁷ proposes the establishment of a national health co-ordinating agency. Of particular interest in this proposal are his statements:

1. ... encouraging the development of nationwide standards for educational programs established for those persons who provide health services with a view to influencing the level of minimum qualifications required by graduates of the programs, achieving portability of qualifications and credits and improving the services provided.
2. ... acting as a co-ordination focal point among the agencies now involved in or responsible for accreditation with a view to developing processes of measuring and recognizing the attainment of approved standards (accreditation), capitalizing on the factors of economy, efficiency and effectiveness.

It would be a waste of resources to create a new co-ordinating agency. There exists today a national dental health educational co-ordinating agency which should undertake the proposals mentioned above; the Association of the Canadian Faculties of Dentistry (ACFD). By calling on representatives from every school, the ACFD is in a position to function in a tremendous variety of ways. Calling on its own university resources, the ACFD could provide guidance in health planning for all the provincial dental health organizations. More importantly, it could act for the provincial health departments as a liaison in planning between all the various educational, professional, provincial and federal agencies. This does not imply that the provincial health departments would abdicate their responsibilities, but rather

that the ACFD would act as agents for them. The authority would still lie with the respective ministers of health, but the ACFD would co-ordinate manpower development with manpower need, contribute to all educational institutions and their curricula, administer the computer bank of didactic courses, and provide national resources to aid in the evaluation of student progress. This function of the ACFD would ensure that the resources are effectively and efficiently used, whether they be in clinical, behavioral or basic science areas. The authors believe that the ACFD is the one existing agency that could readily co-ordinate manpower training in the dental field. If they were sanctioned by the profession and by the government as a co-ordinating agency, progress would still depend on co-operation at all levels of the dental educational structure, i.e. among the representatives of universities, colleges, technical schools, school boards, provincial and national licensing bodies, and municipal, provincial, and national health departments. In the first instance, the universities could lead the way by sharing resources with the profession in continuing education, with the government in care delivery programs, and with other universities in the development of quality instruction.

Legislation — The ACFD, as a national co-ordinating agency, could play a major advisory role in conjunction with the provincial and federal governments to ensure meaningful legislation. Walsh²⁸ stated, "... although legislative measures usually move more or less parallel to improving standards of dental education, there is always the danger that governments anxious to introduce public health schemes may permit unqualified or poorly educated persons to practise dentistry." We must be careful that any proposed legislation adequately provides quality control over the training and rendered services of all types of health personnel providing services directly to the public.

With a broadening of perspective and an adequately financed "open-door" policy in universities, controlled health delivery educational systems could be established nationally in order to streamline access and egress with re-entry for all levels of health personnel, even those labelled "unqualified" or "poorly educated." With readily available self-instructional material and nationally supervised evaluation processes, all interested and skilled individuals should be given the opportunity and encouraged to serve the public to the limit of their *evaluated* skills. We cannot feel proud of the fact that only 10 per cent of the Canadian public received 70 per cent of the dental treatment.²⁹

Summary and conclusions

Change is painful, but need it be painfully slow? We submit it need not. Through a greater, more efficient sharing of resources, formulation of clearly defined goals, accurate evaluation, and replacement of "sacred cows" with a spirit of co-operation and fluidity of planning, dental education in Canada can presently contribute enormously to improved dental care for the Canadian people.

With governmental co-operation through increased financial support, Canadian dental faculties (using the current national organization of the ACFD) can supply resources, expertise and planning.

We submit the following proposals which the ACFD, through various councils or committees, could expedite:

1. Develop a method for periodic monitoring of the dental needs of the population.
2. Plan for ways to deliver care to isolated segments of the population.
3. Define the benefits of dental care in economic terms.
4. Establish a national system for sharing instruction in dental education.
5. Explore the feasibility of care delivery to needy segments of the population through supervised dental students.
6. Study the application of educational technology to dental education.
7. Investigate the concepts of career lateralizing and career escalating.
8. Reduce unnecessary duplication of educational programs through national coordination.
9. Establish a national system for sharing evaluation and testing materials.
10. Emphasize more effective training for patient education and prevention.
11. Support the development of better criterion measures of professional performances by dental personnel.
12. Encourage new approaches for imparting the desire for continued learning in health personnel.
13. Advise government bodies on dental health legislation.

Either alone or in conjunction with the CDA, the ACFD should maintain an ongoing study of the effectiveness of dentists in all geographic areas and economic levels; i.e. compile the gross national product of dental health care. Finally, the ACFD should, in its capacity as the national co-ordinating agency, ensure accessibility of all agencies to all aspects of the educational structure. This would effect "accountability" to society for all its efforts.

*'If eleven deans with eleven schools,
Filled these for half a year,
'Do you suppose,' the Premier said,
'That they could get it clear?'
'I doubt it,' said the Minister,
And shed a bitter tear.*

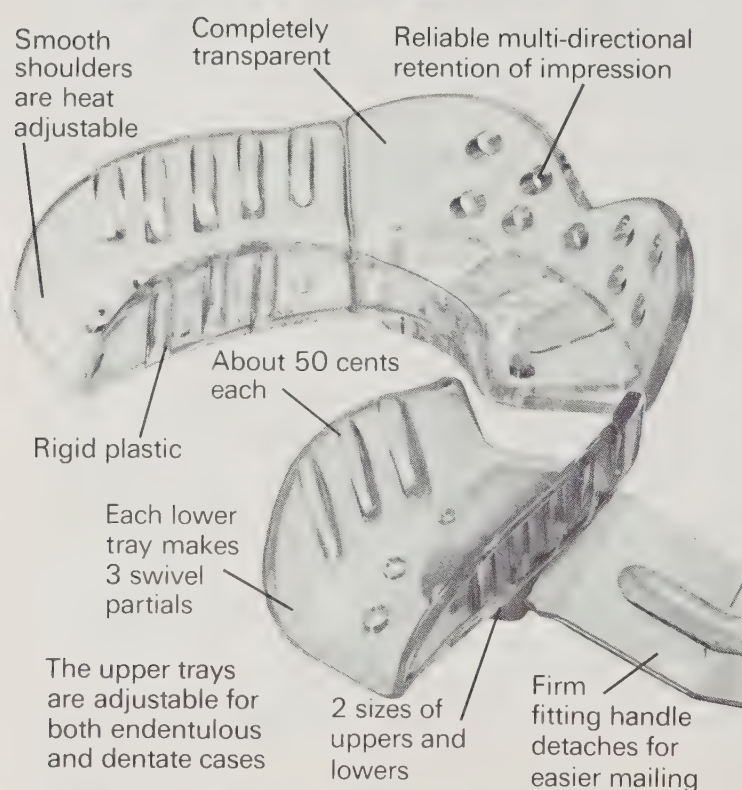
(With apologies to Lewis Carroll!)

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References on page 76

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Effects of teacher training

Effects of teacher training

This paper was presented to the American Dental Association's National Symposium in Chicago Oct. 28, 1975 by Gordon Mutter, Health Consultant, Ottawa Board of Education, Ontario.

Those of you who have recently had the opportunity to review the professional literature, as it relates to school dental programs, are aware of the key role which teacher training plays towards establishing a successful program.

Assuming this to be true, our concern really centres on how to make such teacher training effective. Herein lies the crux of the problem; namely, how does one motivate teachers in workshops so that they will replicate newly acquired preventive techniques with their pupils in the classroom?

We know from the recent writings of behavioral scientists, such as Hockbaum, Rosenstock and Evans, that motivation of human beings is much more complex than previously realized. Operant conditioning as preached by B. F. Skinner is not necessarily the panacea to explain human behavior. Consequently, teacher workshops are often planned without much forethought as to the best means by which to motivate the participants.

I would like to share briefly with you a distillation of the procedures which I have adopted over the past seven years in training teachers in dental health education. First of all, I have come to the realization that many teachers hold a negative attitude towards the necessity of such a workshop. The reasons for such skepticism are varied and numerous.

For example, many teachers know the basic facts of preventive dentistry and do not feel personally threatened by dental disease. To teachers with this attitude, a workshop would appear to be redundant. Others may have attempted to teach the topic before, and have been turned off by the lack of good resource materials available. Still others may hold the view that dental health, like other health topics such as sex education, are the responsibility of the home; particularly if skills such as brushing and flossing require daily application and supervision.

Regardless of the many reasons for teacher pessimism, the planner of a teacher workshop should realize that the hostility which may be initially encountered is often well founded. This problem is not helped by a full elementary school timetable in which the subject of health education has a low priority.

Is it any wonder that dental health education often gets a cursory look at best from the "jack of all trades" or generalist elementary school teacher. This last excuse for the lack of a sound program in dental health is where I will focus my remaining remarks. In other words the teacher as a non-specialist in health education must be trained, and convinced that there is a place for dental health education in the daily routine of his or her pupils.

Consequently, workshops must present to teachers a stimulating, yet simple and practical solution to the problem of plaque control. Some time ago, I attempted to do this by designing a multi-media presentation — titled "The Plak-Off Program". Basically this program, which I employ in my workshops, applies the principles of the well known health belief modes as postulated by Rosenstock.¹

I attempt to make the teachers aware of their own oral health by initiating a workshop with an opening monologue which might go like this: "I'd like to test the dental IQ of the audience by asking you to do the following: (a) raise one hand representing each of your parents if they have or had dentures. (b) How many of you flossed this week? (c) How many of you brushed your tongue this month? (d) How many of you kissed someone recently?"

At this point in the proceedings, the atmosphere has become informal and humorous, yet there exists a subtle embarrassed concern regarding the teachers' own oral health.

Now comes the "judo" request. "At the count of three I want you to turn to the person on your right, and go 'Ahhh!' Ready, one, two, three." Then, follows the sobering statements such as: "Why were many of you reluctant to do this? What causes halitosis? Others may appreciate your mouth being clean as well."

At this point the audience of teachers should be receptive to viewing the first film strip and tape. It opens with a mild shock approach and asks the question "How clean is your mouth?"

A personal awareness of the problem should be well established by now, and the next step towards behavior modification is identifying the cause of the problem. Thus dental plaque is examined in some detail, stressing its role

in development of dental caries and periodontitis. The next logical step then, is how to attack the problem. Results of continued neglect are compared with a positive preventive approach. Preventive techniques illustrated on the screen are reviewed with the aid of large models.

It is quite easy to create a model for flossing. Simply embed two large light bulbs into pink polyurethane foam and then screw them into sockets attached to a wooden base. Use a string to scrape off artificial snow sprayed on the bulbs from an aerosol can.

The brushing model is even simpler. Entwine the string among the teeth of a very large comb available from novelty shops. Scrubbing across the teeth of the comb with a large demonstration toothbrush, will not remove the string. However the brush easily sweeps out the string if twisted parallel to the teeth. The word *sweep* rather than *brush* is stressed, due to the false concept of brushing our teeth like we brush our shoes i.e. at right angles. At this point the audience divides into small groups in order to individually stain, brush and floss. The presence of dental professionals, not only adds validity to the situation but their free advice is appreciated by the participating teachers.

Association of practising these preventive habits during a favorite T.V. program or other daily occurrence is emphasized, if the routine is to become habitual.

The coffee break which follows is often full of conversations relating to the presence of harmless sucrose, now that mouths are plaque free. The teachers then regroup as a whole for a summary and question period. After briefly entertaining questions regarding their own personal dental problems, the emphasis shifts for the first time to the proposed school dental program, and thus the reason for the workshop. The assumption is that the teachers feel competent to teach the topic, and convinced of the need to do so.

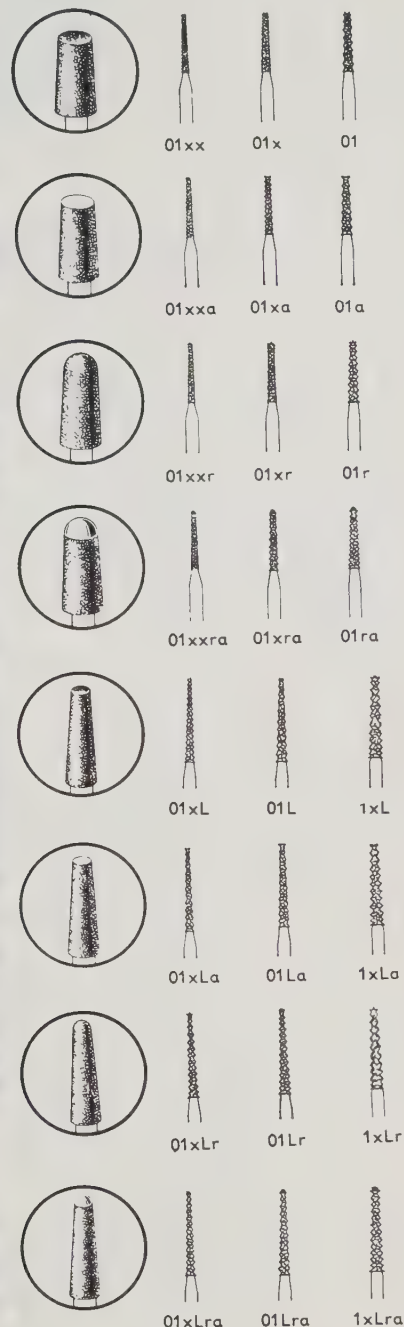
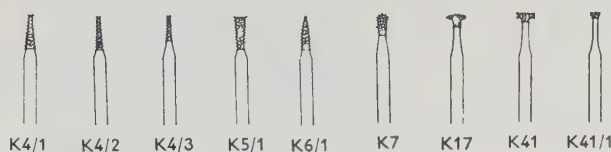
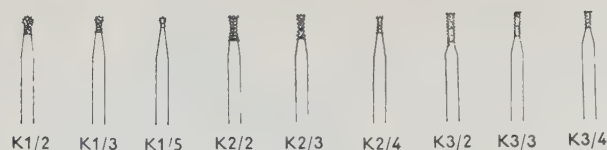
A testimonial at this time by one of their colleagues who has previously taught the program reinforces the enthusiasm created by the workshop. A short videotape of a typical classroom routine, at different grade levels, is also a great selling point at this time. Whenever the audience sees teachers and pupils brushing and flossing during the morning P.A. announcements, the common complaint of lack of class time becomes invalid.

Now that motivation is high, it is important that the teachers leave with the actual school program which has previously been attractively packaged. Total time required for the workshop is 2½ hours. The only costs involved are for the individual teacher dental kits, which they gladly purchase at the wholesale price of \$1.00 each.

I believe the seriousness shown by the teachers and principals, particularly the older ones, to perfect preventive skills they believed they already knew, speaks for itself.

By employing the foregoing method of teacher training, 34 elementary schools have established a permanent daily preventive program in the past six months.

1 Rosenstock, Irwin. Historical origins of the health belief model. Health Education Monographs, Vol. 2, No. 4, Winter 1974, pp. 328-335.



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CDA Task Force on Continuing Education

The following is the Report of the CDA Task Force on Continuing Education. Chairman of the Task Force was G. S. Beagrie and members were D. V. Chaytor and M. J. Lipkind. An ad hoc committee has been appointed by the Board of Governors to further develop the concept and make recommendations on its implementation.

Following the Report of the Conference on Continuing Education of September 1972, the Canadian Dental Association Council on Education appointed a Task Force with the following remit:

“to initiate an investigative program with the licensing bodies, the corporate members, the NDEB, the dental schools and other related organizations, to establish national guidelines for continuing education in dentistry, the investigation to include academic and funding aspects of such a program”

The Task Force worked on the assumption that the objectives of continuing education in dentistry are as follows:

“a process whereby persons who no longer attend school on a regular or full-time basis undertake sequential and organized activities with a conscious intention to bringing about changes in information, knowledge, understanding or skill, appreciation and attitudes or for the purpose of identifying and solving personal or community programmes.”

UNESCO Conference 1972

This report has been written on the basis of the findings of the Conference on Continuing Education, communications from dental faculties, provincial associations, licensing bodies and the results of a questionnaire sent to 10 per cent of the dental profession of Canada.

Review of problems and related needs

Rapid growth of and proliferation of knowledge in modern life is one of the main impacts being made on all health professions at the present time.

Individuals no longer can have security based on levels of learning at the time of graduation and thus organized dentistry is faced with the responsibility of preparing its members to keep up to date through the continuing education process. However, this need is a need for adult education and the problem is that continuing education in the main has been a grafting process in which undergraduate programs, rigid in character, have been added in the name of adult education. Another problem is that these additions to basic knowledge have been added piecemeal rather than in a continuing sense — in other words, without plan.

The undergraduate training of a dentist makes for individuality — indeed this may well be one of the fascinations of the profession for those who selected it. The isolation of practice continues and the independence which ensues for the individual dentist becomes his weakness in keeping “up-to-date.” The physician counterpart is exposed to a hospital to maintain quality control and introduce ideas of change. Although it has long been considered that use of auxiliaries in dentistry will increase productivity, Hall¹ has shown that only

about 6 per cent of practitioners employ hygienists, and a recent survey² in 1971 would indicate that the figure may be as low as 3 per cent.

A further complication is that most dentists still work a routine repair and replacement service rather than prevention. Thus the profession has not responded easily to change of public needs and attitudes.

Since continuing education must be used as the vehicle of change, it must assume its rightful place in the scheme of things. In this regard there is great need for an experimental model to be set up for continuing education of dentists.

Continuing education has slipped into the danger of concentrating always on “recent advances” of knowledge and in this sense losing sight of the need to fulfill the specific area of improvement needed by this and that practitioner. For some people this knowledge would be basic in type rather than recent advanced knowledge. Both types *must*, however, be catered for.

Continuing education as part of planned dental health care

There is an increasing desire upon the part of the profession to have continuing education as a mandatory item for maintaining licence to practise. Such pressures have been forthcoming because of a growing awareness by the

profession of society's increased concern about the quality of treatment. Quality control is already in the hands of the profession and the 1972 Continuing Education Conference of the Canadian Dental Association considered that continuing education was absolutely necessary for those providing bad dental health care.

Equally, it must be argued that continuing education courses, etc. must become the instrument of training dentists to be "comfortable" with new approaches to dental health care. Thus the use of the health team concept, being strange to most qualified practitioners, has to be introduced and directed through continuing education courses. Upward mobility of personnel within the profession must also be the plan of continuing education. The chairside assistant should be capable of retraining and, with sufficient credits, become a hygienist; the hygienist, in turn, to become an operatory auxiliary. The goal of all these moves must be improved service to the community through mature professional guidance.

In terms of faculty, finances and facilities, continuing education is the "stepchild" of dental education. Courses tend to be provided to the dentist not for what he may need but instead for what he may wish.

The recent Task Force Report on the Future of the Canadian Dental Association (August 1974), indicates that study of new approaches to delivery of dental care and continuing education programs is a "high value" service required of the Association. These two subjects are indeed inseparable.

Continuing Education — Survey of Practitioners

During the latter part of February 1974, a questionnaire was sent out randomly to 10 per cent of the dentists of Canada. Approximately 800 questionnaires were sent out and 562 were returned, i.e., approximately 70 per cent positive return. Certain facts emerged from the survey which are worthy of comment.

Distribution according to years of practice

A full 55.9 per cent of respondents were practitioners of 1 to 15 years' standing; 21.4 per cent of 15 to 20 years' standing; and 14.2 per cent of 20 to 30 years' standing.

Mandatory continuing education

There were 68.7 per cent in favor of mandatory continuing education being required to maintain licence to practise in a province, while involvement in continuing education was considered necessary by almost all respondents for the continued practise of good dentistry.

Type of practice

It was found that 64.9 per cent of the respondents work in independent practices and 31.7 per cent in a group practice.

Location for continuing education

A majority (75.3 per cent) of dentists would prefer to have courses of continuing education in their own locale, which fits with the responses indicating that time lost from practices and distances away from home are the major reasons for non-attendance at continuing education courses.

Primary organizers of continuing education courses

University faculties and professional associations were considered the necessary bodies for organizing courses. The months of October, November, February, March and April were considered the most suitable for course presentation.

Role of the Canadian Dental Association

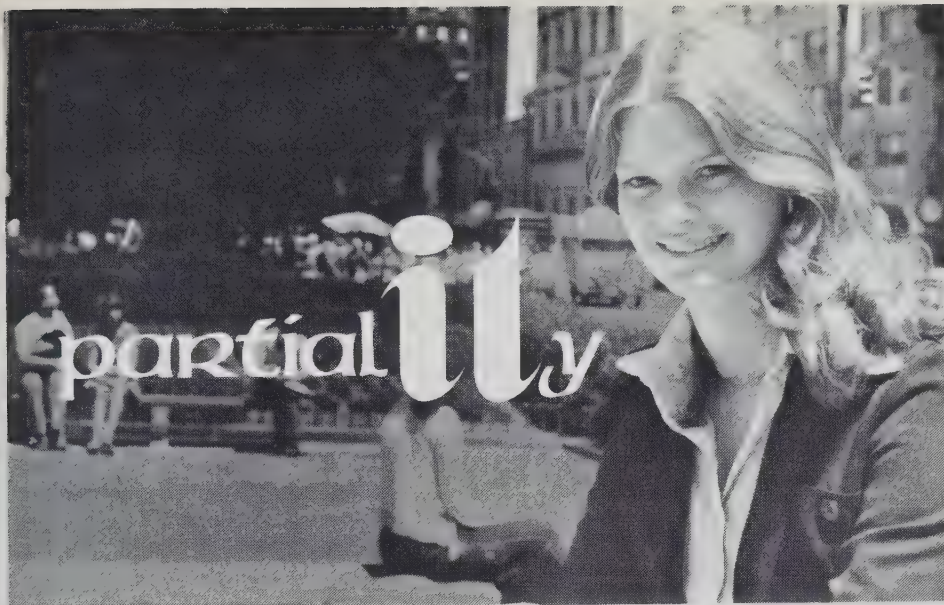
Recognizing the need for continuing dental education, the Canadian Dental Association conducted a three-day conference on the subject in September 1972, supported by National Health Grant 606-22-36.

Representatives were present from corporate members of the Association, provincial dental licensing bodies,

Canadian dental schools, provincial dental directors and allied groups of the Quebec Dental Surgeons' Association, the Association of Canadian Faculties of Dentistry, National Dental Examining Board and the Royal College of Dentists of Canada. Observers were present from various bodies, including Ontario Department of Health, Department of National Health and Welfare, and the Canadian Medical and Pharmaceutical Associations.

Following the publication of the report of this Conference, the Task Force asked for commentary from the respective bodies who were represented. An expression of the role of the Canadian Dental Association was particularly asked for. In general terms, the roles suggested of the Association are as follows:

1. Development of a national system of continuing education in association with provincial associations and licensing bodies.
2. Development of a national uniform credit point system for various continuing educational activities.
3. Development of an involvement of the dental practitioners as distinct from the faculties of dentistry in new continuing education models. In this respect the Association should act as a resource centre for compiling an annual listing of resident and visiting teachers who would be suitable and available to give instruction. Topics covered and curricula vitae should be "banked" by the Association. Information on each teacher should include independent evaluations by participants of previous programs.
4. Provision of a self-assessment manual, similar to that provided by the American College of Dentists' testing service, for Canadian dentists to evaluate their knowledge.
5. Setting specific standards for continuing education programs and provision of guidance for program planning.
6. Examination of undergraduate and postgraduate programs by accreditation teams for evidence of emphasis on continuing education in dentistry.



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7. Development of a resource library for expensive teaching material, such as video cassettes and 8mm films etc.
8. Provision of liaison with governments to:
 - (a) help obtain tax concessions in the knowledge that continuing education is essential to maintain effective standards for delivery of health care;
 - (b) give national funds for special projects such as symposia;
 - (c) gain access to national television circuits for professional educational programs.
9. Development of educational models of continuing education and assessment of their value for the profession.

Conclusions

The professional in dentistry whether he is the dentist, specialist, auxiliary or technician is learning in a variety of ways. Basic education is kept up-to-date through journals, books, films, conventions, short courses and many other aids. The individual is responsible for his own continuing education but the national organization must help in the achievement of the goal.

Although continuing education of the dental profession falls under the aegis of many bodies, the Canadian Dental Association must accept a major central role, since, through accreditation, it is responsible for standards.

Because of the information explosion a program of continuing education is needed which is comprehensive, well organized and sequential.

Since dentists in this country are widely dispersed and most are in locations divorced from dental schools, a mass educational method must be developed to provide additional education without further over-taxing the present teaching manpower.

Greater use of the community setting is essential. Local hospitals and educational institutions, e.g. community col-

leges, must be used for continuing dental education. Liaison through authorities of these institutions should be conducted so that centres of learning can be set up and seen to be working with Canadian Dental Association support.

Modern technology has allowed many advances for instruction in dentistry and audio and audio-video tapes have become part of the modern educational armamentarium. The Canadian Dental Association has embarked upon an audio cassette program for continuing education purposes, and over the last few years much emphasis has been placed on the need to supply an audio-video cassette program on the same basis. The cost however of video cassette material at this time is prohibitive for each dentist to use. The medium would be best supplied through the Canadian Dental Association and it would seem expedient to use the Association library as a resource centre for that purpose. Video tapes and other package courses should be made up and distributed to the profession when required.

The questionnaire shows that practitioners wish to have courses of instruction through faculties of dentistry at universities. However, for this to be effective, it is essential that departments of continuing education be established with sufficient status and budgets to provide meaningful courses to practitioners and auxiliaries alike. The accreditation system of the Canadian Dental Association should be able to put pressure on schools and governments to provide for such an establishment. Time spent on continuing education must be considered an integral part of patient care and governments must recognize this fact.

There is need for a research model to investigate different methods of continuing education on the learner. Techniques of evaluation are very limited. Since these are being investigated by our medical colleagues it would seem expedient to pool resources of evaluation methods as well as educational approaches to continuing education. This move would best be started at the Canadian Dental Association level.

Recommendations

1. That the resources of the following should continue to be actively involved in continuing education:

- (a) All Canadian dentists.
- (b) Dental faculties and teaching hospitals.
- (c) Canadian dental Association and corporate bodies.
- (d) Provincial licensing bodies, etc.
- (e) Governments — both federal and provincial.
- (f) Dental auxiliaries.

2. That the Canadian Dental Association appoint a full time co-ordinator of continuing education, initially for a period of three years, who, in conjunction with the corporate bodies and licensing authorities, would work with the universities and establish ideal ways of implementing continuing dental education for Canada. The Medical Research Council or National Health and Welfare should be approached for the funding.

3. That the Canadian Dental Association co-ordinator select five or six areas across the country to constitute a pilot project on continuing education delivery which will identify administrative problems and demonstrate possible solutions. Further, to provide information after three years as to the effectiveness of the different methods used. Experience gained should be of value to all concerned bodies associated with continuing education requirements.

It is envisaged that the co-ordinator would act in the provision of central resource material both in the shape of personnel and also teaching aids. The areas selected should be representative of various geographic locations in Canada. At each location a responsible person would be appointed to organize and develop courses of instruction according to need. Thus, for example, in North Bay there may be 20 dentists with one acting as co-ordinator. The latter would set up outlines of subjects to be covered for the year and make local arrangements. Material for courses, including personnel, would come through the central co-ordinator. Peer judgment and pressures would act

Continued on page 93

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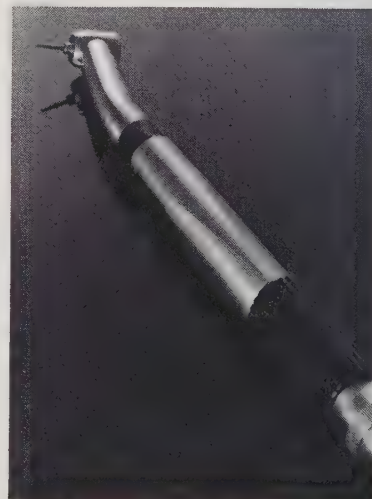
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Federal Income Tax Returns by Dentists

This article was prepared by Thorne Riddell & Co., Chartered Accountants, to assist dentists in the preparation of their annual income tax returns.

The deadline of April 30, 1976 for filing your income tax return for 1975 is fast approaching. At this time of year it is worthwhile reviewing some of the principles involved in the preparation of the tax return, as well as outlining some of the new provisions of the Income Tax Act which will affect the computation of a dentist's taxable income for 1975.

Practice income

Commencing in 1972, professionals are required to compute their income on an accrual basis. The accrual method requires taxpayers to include in income accounts receivable and work in progress, and to deduct amounts in respect of accounts payable outstanding at the end of each taxation year. The taxpayer may elect to exclude work in progress (a modified accrual method). This election is required only once and when made it is binding for all subsequent years and can only be revoked with the concurrence of the Minister of National Revenue.

It is necessary, therefore, to maintain a record, not only of all fees billed, but also those which are "receivable". An amount becomes receivable on the earliest of:

- (1) the day on which the account is rendered,
- (2) the day on which the account would have been rendered if there had been no undue delay in billing, and

(3) the day on which the taxpayer was paid for the services.

If the election to exclude work in progress has been made, detailed records of this item need not be kept.

Because professional income is now computed on an accrual or modified accrual basis, the taxpayer may deduct a reasonable amount as a reserve for doubtful accounts which had been included in computing his income for the year or a previous year. In addition, if the taxpayer is required to include in his income for a year an amount received for which he has not rendered any services, he is allowed a reserve in respect of such amounts.

The taxpayer who was in professional practice before 1972 was required to include the amount of his 1971 accounts receivable in his 1972 income. He was then entitled to deduct a reserve equal to the lesser of this amount and the amount of accounts receivable (net of any allowance for doubtful accounts) outstanding at the end of the 1972 taxation year, in the case of a sole proprietor. In 1973 and subsequent years, he must add the reserve deducted in the previous year to the current year's income and then claim a new reserve equal to the lesser of the amount so added back or, in the case of a sole practitioner, the amount of his net accounts receivable at the end of the year (in the Income Tax Act, this amount is referred to as his "investment interest in the business"). If the practitioner is a partner, this "investment interest" is equal to his adjusted cost base of his interest in the partnership at the end of the partnership's fiscal period. The effect of these provi-

sions is to tax the professional's 1971 receivables only as this investment interest falls below the untaxed balance of these receivables.

Practice expenses

Amounts allowed as deductions from income are expenses, incurred for the purpose of gaining or producing that income, which have been paid or have become payable in the year, provided that they were not deductible in any prior year.

Under the heading of expenses the following are examples of accounts which should be maintained:

- (1) Dental and like supplies.
- (2) Salaries of office help — The amounts of salaries and wages paid to employees should be reported on a calendar year basis on forms T4-T4A Summary and T4 Supplementary, obtainable from the District Taxation Office. The deadline for the filing of these forms is the last day of February of the following calendar year. The Income Tax Act does not allow as a deduction a salary paid by a husband to a wife or vice versa. Such amount, if paid, is to be added back to the income of the payer.
- (3) Telephone expenses incurred in connection with professional practice.
- (4) Dental assistants' fee — The names and addresses of the assistants and the amounts paid to them, should be reported on Form T4.
- (5) Office rentals paid — The name and address of the owner (preferably) or the agent of the rented premises should be furnished.
- (6) Postage and stationery.
- (7) Proportional expenses of dentists practising from their residence:

(i) Residence owned by the dentist: Where a dentist both resides in and practises from a house he owns, a proportionate amount of house expenses is allowable for the laboratory, office and waiting room space in the ratio that this space bears to the total area of the residence. The expenses include property taxes, light, heat, insurance, repairs and interest on mortgage. A further discussion of this topic, including the claiming of capital cost allowance, will be found below.

(ii) Residence rented by the dentist: Rent and other house expenses paid by the dentist will be apportioned in the same manner as that described above.

(8) Sundry expenses (not otherwise classified) — The expenses charged to this account should be capable of analysis and supported by records. They include such things as:

(i) the annual dues paid to governing bodies under which authority to practise is issued, as well as dues to other professional associations,

(ii) insurance premiums paid for such things as malpractice insurance, office contents and liability insurance; however, personal insurance premiums such as life insurance and medical insurance are not allowable,

(iii) magazines, etc. for waiting room,

(iv) professional textbooks and reference books if purchased individually; however, if an entire library is purchased, the amount so expended would be a capital expenditure which may only be deducted by way of capital cost allowance.

(9) Interest paid on borrowed money may be charged against professional income if the borrowing was for professional purposes. If the money was borrowed to acquire investments the interest is also deductible. No deduction from income will be allowed, however, for the interest paid on personal loans.

(10) Business taxes will be allowed as an expense, but income taxes will not be allowed.

(11) Automobile Expenses — Revenue Canada. Taxation has issued an Interpretation Bulletin (IT-180), dated September 30, 1974, the purpose of which was to provide some guidelines

to an individual who is eligible to deduct expenses of operating an automobile in computing his business income. Eligible individuals include a self-employed individual who owns or rents an automobile used by him to earn income from his business (including a profession). The deductible amount is normally that portion of the total operating expenses of the automobile incurred by the individual in the year that the mileage driven to earn business income is of the total mileage for the year. These expenses will be allowed in computing the net income of the dental practice when the dentist must visit his patients at their homes or in hospitals. The cost of transportation between the dentist's home and his office, however, is not an allowable deduction from income.

Capital cost allowance (depreciation) on an automobile used for business purposes, if owned by the taxpayer, may be included in these automobile expenses but this amount must also be pro-rated in a similar manner as the other expenses.

(12) Social club dues are not allowable as a deduction. "Social club dues" includes any dues or memberships fees (including initiation fees) in any club the main purpose of which is to provide dining, recreational or sporting facilities for its members. However, any entertainment expenses incurred at such a club are deductible if they were incurred for the purpose of earning income and they are properly documented. An outlay or expense made or incurred by the taxpayer (including capital cost allowance) for the use or maintenance of a yacht, a retreat or similar property are not allowed.

(13) Donations — Charitable donations should not be deducted from practice income. They should be deducted in the appropriate place on your T1 form (see medical expenses and donations).

(14) Payments to non-residents — Where payments have been made to a non-resident person on account of interest, rent, royalties or other similar payments, a non-resident withholding tax must be withheld by the payer and

remitted to the federal tax authorities. In so doing the taxpayer is required to file additional forms, namely an NR4 Summary and an NR4 Supplementary, no later than the last day of March of the year following the calendar year in which payment was made.

Effective January 1, 1976, there has been an increase in the withholding tax on certain types of payments to non-residents. You should check with your District Taxation Office if these comments are applicable to your situation.

(15) Convention expenses — Convention expenses are allowable to an individual practising a profession, but the allowance is restricted to the expense of attending no more than two conventions in a taxation year. The taxpayer's attendance at the convention must have been for professional reasons. The expenses to be allowed must be reasonable and the taxpayer should be able to show:

(i) the dates on or between which the convention was held, and the location thereof,

(ii) the number of days he was present at the convention, supported by a certificate of attendance from the sponsoring organization, and

(iii) the expenses incurred, segregating (a) transportation expenses, (b) meals, and (c) hotel expenses, at least for which vouchers should be obtained and kept available for inspection.

All expenses of a personal nature including those attributable to the presence of the taxpayer's spouse and children accompanying him to the convention must be excluded.

The location of a convention must be consistent with the territorial scope of that organization. Expenses incurred in attending a convention sponsored by a Canadian organization that is held outside those geographical limits will not be deductible in computing income. For this purpose, a convention held during an ocean cruise will be viewed as being held outside Canada.

Professional partnerships

Partnership income is taxed in the hands of the partners, but, as a result of tax reform in 1972, there are certain

features to be considered in determining income at the partnership level such as capital cost allowance provisions, treatment of 1971 accounts receivables, etc. Basically, the income from a partnership is first determined at the partnership level. The income so determined is then allocated to each partner who includes this allocation in his personal income. Certain deductions for expenses incurred personally, such as interest paid on money borrowed to purchase his partnership interest, are allowed. The partnership arrangement should be supported by a legal partnership agreement, the drafting of which normally requires professional advice.

Capital gains and losses

The Income Tax Act provides that taxpayers must include in income the excess of taxable capital gains over allowable capital losses. A taxable capital gain is defined as one-half of the gain from the disposition of a capital property while an allowable capital loss is one-half of the loss from such a disposition. If capital losses from property, other than listed personal property (works of art, jewellery, rare books, stamps or coins), exceed capital gains, an *individual* may deduct up to \$1,000 of the net allowable capital losses from income from other sources in the same year. There are provisions in the Income Tax Act to apply any additional excess capital losses to the previous year's income, by re-filing that year's tax return, or to any number of future years until they are absorbed.

Ordinarily a person's residence is exempt from tax on any capital gain realized on disposition if the property was used as his principal residence for the entire period after 1971. If the taxpayer has more than one residence he must designate which one he wishes to treat as his principal residence for the year. The residence so designated must be one "ordinarily inhabited" by him.

Where a husband and wife have jointly owned both a cottage and city residence since January 1, 1972, it is possible for the principal residence exemption to be claimed on both properties. However, in order for this to occur, one residence should be owned outright by the husband, the other

owned outright by the wife. This may require a transfer of interests in the properties between spouses. While there would be no income tax consequences from such transfers, there may be a problem with gift taxes or land transfer taxes, depending on the provinces the spouses reside in, and legal counsel should be obtained in this respect. However, it should be noted that there may be adverse tax consequences in any situation other than the one mentioned above.

Use of personal residence for business purposes

Where a dentist is using a portion of his or her personal residence for clinic and office purposes, special rules apply regarding capital gains and the deductibility of capital cost allowance from the income of the practice. Care has to be taken, especially where the dentist has only just commenced using the residence as his clinic, in order to avoid a deemed capital gain. The Income Tax Act specifies that where a change in use of capital property has occurred (for example, when the house, or a portion of it, has changed from being the principal residence of the taxpayer to being his place of business) a disposition of that property is deemed to have occurred and may be subject to capital gains tax. The disposition is deemed to have occurred at its fair market value at that time, and to the extent that this value is greater than the cost of the property or its fair value on December 31, 1971, whichever is larger, the capital gain is taxable. However, in Interpretation Bulletin IT-120, dated April, 1974, Revenue Canada has outlined its policy in the case where only part of the residence is being used for business purposes. As long as the taxpayer does not claim capital cost allowance on any portion of the residence, "it is the Department's view that a change in use of the property has not occurred and that the entire residence maintains its nature as a principal residence, provided it so qualifies." It would appear that this policy does not affect the deductibility of maintenance costs, etc. It should be noted that while the Interpretation Bulletin can in no way be taken as law, it does give a good indication of

Revenue Canada's assessing practice.

In any event, a dentist using all or part of his residence for business purposes should check with his accountant to ensure that he is not incurring any additional tax liability.

Investment income

Many people also have income from other sources such as rent, dividends and interest. Generally, dividends and interest are reported to the taxpayer on a T5 Form and therefore require little record keeping. If any money was borrowed to earn the interest or dividend income, the interest paid on the borrowed funds is deductible from total income received.

In 1974, taxpayers were allowed, for the first time, to deduct net interest income, effectively earning such income free of tax. This provision has been continued into 1975 and has been broadened considerably. The income eligible for the deduction now includes, not only interest, but also taxable dividends received from a Canadian corporation resident in Canada. The interest and dividend income, in order to be eligible for this deduction, cannot be received from a corporation controlled by a taxpayer or members of his immediate family. In addition, there is no longer a requirement to reduce the amount of eligible income by the amount of interest expense one has deducted in his tax return, which was the situation in 1974, whether the expense was for investment purposes or some other business purpose.

In addition, where a taxpayer's spouse has income eligible for the deduction, but does not have sufficient income after deducting his or her personal exemptions to fully use the available income deduction, the unused portion of the deduction may be used by the taxpayer in addition to his or her income deduction.

Cash bonuses received by holders of Canada Savings Bonds may be treated either as interest income or capital gains. If they are treated as income, they qualify for the interest income exemption; if they are treated as capital gains, only one-half of the amount is taxable. The taxpayer may choose

whichever method is more beneficial to him.

Payments made to investment counsellors are fully deductible, whereas, prior to 1974, only one-half of such fees were deductible.

Rental income

In the case of rental income, detailed records of all income and expenses must be kept. The records kept will be very similar to the records necessary for the practice income and expenses. There is a provision in the Income Tax Regulations which restricts the claiming of capital cost allowance on rental buildings to the extent of net rental income before a deduction for capital cost allowance; therefore losses cannot be created by claiming capital cost allowance on the buildings. However, a loss may be created by capital cost allowance claimed on equipment used by the taxpayer. This restriction was lifted for multiple unit residential buildings on which construction was commenced after November 18, 1974 and before 1976. It was announced by the government in November, 1975 that there will be a two year extension of the December 31, 1975 deadline for this special treatment for eligible buildings, but there has not been an official amendment to the applicable regulation.

Pension income

For those taxpayers over the age of 65 years who are receiving pension income, there is a similar deduction available (maximum \$1,000) in respect of this income, to that available for interest and dividend income. "Pension income" includes: (1) a payment out of a superannuation or pension fund, (2) an annuity under a registered retirement savings plan or deferred profit sharing plan, and (3) the income of any other annuity other than one being received under an income averaging annuity contract. Amounts received under the Old Age Security Act or similar plan of any province, or under the Canada Pension Plan do not qualify for this deduction. A taxpayer who is under the age of 65 is eligible for the deduction if he receives annuities from any of the above sources except that a payment

out of a superannuation or pension fund is only eligible if it is received by the taxpayer as a consequence of the death of his spouse.

As with the interest and dividend income deduction, any unused pension income deduction of a taxpayer may be transferred to his spouse.

Registered retirement savings plans

The amount that is deductible in respect of contributions to a registered retirement savings plan(s) is limited to: (1) in the case of an employee who is or may become entitled to benefits under a pension fund or plan (whether or not he contributes to the pension fund), the lesser of \$2,500 and 20% of earned income minus, in each case, the amount, if any, he is allowed to deduct from income for his contribution to a registered pension fund, or (2) in any other case, the lesser of \$4,000 and 20% of earned income. "Earned income" usually consists of income received as salary (before any pension deductions) or income from carrying on a business or profession, plus net rental income, from real property. The amounts deductible are those paid in the 1975 calendar year and within 60 days thereof. A payment made in January or February 1976 cannot be claimed in 1976 if it could have been claimed in 1975. The final date for payment of contributions which can be deducted in the 1975 tax return is March 1, 1976.

For 1974 and subsequent taxation years a contribution by a taxpayer can be divided between his plan and his spouse's plan provided that he does not exceed the maximum deduction otherwise allowed him. This allows a working spouse to create a registered retirement savings plan for a non-working spouse. The contribution to a spouse's registered retirement savings plan is also advantageous from the point of view of the pension income deduction. As we have explained above, annuities from registered retirement savings plans are eligible for this income deduction. By contributing to a registered retirement savings plan for your spouse, one can effectively double the

amount of eligible pension income of the family unit as whole, or even of an individual spouse as a result of the carryover of the spouse's unused pension deduction. More important, the payments from the plan if the plan is collapsed, are included in the income of a person who may be taxed at a lower marginal rate of tax than that of the contributor of the payments into the plan.

Dentists who have applied for membership in the Canadian Dental Association Retirement Savings Plan prior to March 2, 1976 may be assured that their names are registered as participants in a registered retirement savings plan and that their contributions are deductible for the taxation year 1975. A personal statement of account and a receipt showing the amount of contributions should be mailed in March, 1976 to each participant to support claims made for deductions in 1975 income tax returns. Applications for membership in CDARSP received after March 1, 1976 will entitle contributing participants to a tax deduction in 1976.

Registered Home Ownership Savings Plan

A Registered Home Ownership Savings Plan may be established to help save money towards the purchase of a house. Contributions will be deductible to a maximum of \$1,000 per year to a lifetime maximum of \$10,000. Deductions are allowed if made during the year or within 60 days after the year end. If during 1975, the taxpayer owned or jointly owned real property which was used as an individual dwelling place, or held an interest in a partnership which owned such real property, then he will not be entitled to the deduction. The contributions to the Plan must be for the purpose of providing an amount to be used for the purchase of an owner-occupied home or home furnishings as defined in the Act. If the withdrawals from the plan are not used for this purpose, then the funds may be rolled into a registered retirement savings plan or used to purchase an income averaging annuity; otherwise, income tax will become eligible on these withdrawals.

Both spouses, if eligible, may create their own plans. They may then use the funds in both plans to purchase their home jointly, or for the furnishings in that home. Alternatively, one spouse may use the funds for the purchase of their first home while the other continues his or her plan, possibly using it to purchase a summer cottage.

Dentists on salary

The Income Tax Act provides for the deduction of certain items from salary income. The allowable expenses include annual professional dues and an employment expense deduction equal to the lesser of \$150 and 3% of the income from employment. In addition, if the dentist is employed under a contract which requires that, in the performance of the duties of the office, he must personally pay certain expenses such as office rent, salary to assistants or substitutes, for the purchase of his own supplies and travel costs, then these expenses are deductible. Canadian Pension Plan and Unemployment Insurance contributions on behalf of assistants are also deductible. No convention expenses may be deducted from salary income.

Medical expenses and donations

A taxpayer in computing taxable income may not include in medical expenses any expense paid by the taxpayer or on his behalf by his legal representative for which the taxpayer or such representative has been reimbursed, or is entitled to be reimbursed, from either a public or a private medical plan. The difference between the actual cost and amount reimbursed may be deducted. Premiums paid by an individual to a non-governmental medical or hospital care plan will be deductible as medical expenses, within prescribed limits. The total medical expenses in excess of 3% of the net income may be deducted.

Donations to registered Canadian charitable organizations and to certain registered amateur athletic associations may be deducted from net income. The maximum allowable is 20% of net income. All receipts must be retained and

submitted with the T1 return. If donations are made in excess of what is allowable for the current year they may be carried forward to the next year. As an alternative to claiming the actual medical expenses and donations as detailed above, taxpayers are permitted an optional standard deduction of \$100 without receipts.

Dependent university students

Students in full time attendance at university may deduct from their income \$50 for each month that they attended university. A person supporting such a student may deduct from his income the amount the student could not claim. However, only the student may claim a deduction for his tuition fees paid in the year, regardless of whether or not he paid them. If the practitioner has paid tuition fees in respect of postgraduate courses attended by himself, such fees are deductible by him.

Tax indexing

In 1973, the Income Tax Act was amended, effective for the 1974 and subsequent taxation years, so that the personal exemptions and the individual tax rate structure are to be adjusted yearly to reflect increased inflation. The 1975 personal exemptions and rate structure indicate the dramatic effect of this indexing or, perhaps more correctly, how dramatic the rate of inflation has been in our economy over the past two years. For example, the highest tax bracket is not reached in 1975 till the taxpayer has taxable income of \$70,440 (in 1976, this will be further increased to \$78,420) whereas, in 1973, this bracket was reached at the taxable income of \$60,000.

Payment of tax

Individuals who derive more than 25% of their income from sources other than salary or wages are required to pay the tax for each year by quarterly instalments during the year on March 31, June 30, September 30 and December 31. The required instalments are based on either an estimate of the tax on the current year's estimated income or the tax paid in the previous year. No tax

instalments are due where the total tax payable will be under \$400. Computation form T7B for individuals is available for the calculation of estimated tax. One quarter of the calculated tax plus Canada Pension Plan instalments are due on each of the above dates, the balance, if any, being payable by April 30th of the following year.

Calculation of federal tax

For the 1975 taxation year, taxpayers will be entitled to reduce their federal tax payable by eight per cent, subject to a minimum reduction of \$200 and a maximum of \$500.

For 1974 and subsequent taxation years, a portion of contributions made to a registered federal political party, or to a candidate in a federal election, will be allowed as a tax credit, subject to a maximum credit of \$500. For any return in which this credit is taken, it must be accompanied by an official receipt from the political party.

Provincial taxes on individuals

Each of the 10 provinces imposes its own tax on the income earned by an individual in that province. With the exception of the province of Quebec, no separate provincial income tax return need be filed by an individual whose income is subject to provincial tax. The amount payable will be included with the federal payment and the method of calculation is indicated on the T1 tax return.

Certain provinces allow tax credits in respect of rent or property taxes paid in the year, old age credits, sales tax credits, and contributions to provincial political parties.

Books and records

The Income Tax Act requires that books and records be kept in order to support all income and deductions claimed. These records should be maintained in such a manner as to facilitate checking by income tax auditors or, indeed, your own accountants. Your records must be maintained until written permission to dispose of them is obtained from Revenue Canada, Taxation.

Intradermal naevus: Report of a case

A. Frydman, DDS
Minneapolis, Minn.

A naevus is defined as a congenital, developmental tumour-like malformation of the skin or mucous membrane.¹ It is seen rarely in the oral cavity, but occurs more frequently on the skin. Pack² reports an average of 14.6 moles per patient in a group of 1,000 patients. Nagel,³ in his review of the literature up to November 1972, reports that only 44 oral cellular naevi have been documented. The low rate of occurrence may be due to a combination of lack of examination and reporting.

Case report

A 21 year old Oriental female presented to the Oral Diagnosis Clinic of the Faculty of Dentistry, University of Toronto, for examination.

An exophytic lesion 0.6 cm in diameter with multiple pigmentations was observed on the left retromolar pad. The lesion was asymptomatic and the patient was not aware of its presence.

The area was anesthetised with lidocaine HCl 2 per cent and 1:100,000 epinephrine. An excisional biopsy was performed and the margins were closed with two interrupted 000 silk sutures. The sutures were removed seven days after surgery. The patient is on a six month recall for examination of the surgical site.

The specimen was submitted to the Pathology Department for microscopic examination. Sections showed parakeratinised stratified squamous epithelium overlaying connective tissue of somewhat papilliferous configuration and containing islands and sheets of naevus cells with melanin pigment granules. Some naevus cell masses approximated, but did not obliterate, the basal cell layer of the epithelium. The deep border of the naevus cell mass was ill defined. The diagnosis was "intradermal naevus."

Discussion

Oral naevi may vary in colour from light blue to black. Occasionally some naevi lack pigmentation. These lesions may be flat, sessile or papillary. They can occur on the gingiva, lips and palate. Patchy areas of melanin pigmentation which are common in Negroes, and sometimes seen in Caucasians, may be mistaken for the naevus.

Allen and Spitz⁴ classified naevi as follows:

Intradermal naevus: The common mole may be a flat le-

sion or may be elevated above the surface. It may exhibit brown pigmentation and it often shows strands of hair growing from its surface. The naevus cells of the intradermal naevus are situated within the connective tissues and are separated from the overlying epithelium by a well defined band of connective tissue. The naevus cell is not in contact with the epithelium.

Junctional naevus: Clinically, the junctional naevus resembles the intradermal naevus. The distinction is chiefly histologic. The zone of demarcation between naevus cells and epithelium is absent. The overlying epithelium is usually thin and irregular and will show cells crossing the junction into the connective tissues. Junctional naevi may undergo transformation into malignant melanomas.

Juvenile melanoma: This naevus occurs in children and often appears histologically identical with malignant melanoma of the adult. Clinically malignant features are usually not manifested until puberty.

Compound naevus: This lesion is composed of an intradermal naevus and an overlying junctional naevus.

Blue naevus: The blue naevus is composed of melanoblasts which rarely undergo malignant transformation. It occurs mainly on the buttocks, on the dorsum of the feet and hands, and on the face. This naevus is either present at birth or appears in early childhood and remains unchanged throughout life. The colour of the lesion varies from brown to blue or bluish-black.



Fig 1 Clinical appearance of naevus on left retromolar pad.

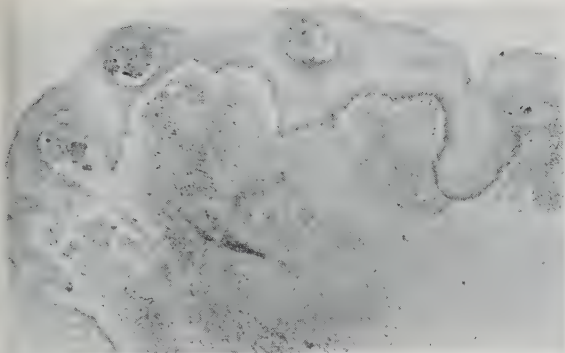


Fig 2 Low power photomicrograph of specimen. $\times 10$.

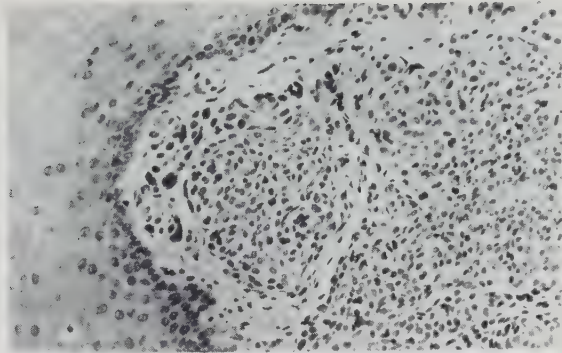


Fig 3 High power photomicrograph of specimen. $\times 63$. Note naevus cell masses approximating the basal cell layer of the epithelium.

Treatment

Naevi can exhibit malignant changes in later life as a result of chronic irritation.⁵ Symptoms of malignant change are a rapid increase in growth rate, darkening in colour, superficial ulceration, and bleeding on the least trauma. The naevus usually precedes the malignant melanoma.

All intra-oral pigmented lesions other than obvious physiologic pigmentation or amalgam tattoos should be excised to determine their nature by pathologic examination.

Summary

A rare case of intradermal naevus on the left retromolar pad of a 21 year old Oriental female is described.

Dr. Frydman's address is 834 - 23rd Avenue SE, Minneapolis, Minn 55414, USA.

- 1 Shafer, W. G., Hine, M. K. and Levy, B. M. A textbook of oral pathology. Ed 3. Philadelphia, Saunders, 1974.
- 2 Pack, G. T., Lenson, and Gerber, D. M. Regional distribution of moles and melanomas. J Surg 65:852, 1952.
- 3 Nagel, N. J. Oral nevi: report of a case and review of literature. J Oral Surg 30:835, 1972.
- 4 Allen, A. C. and Spitz, S. Malignant melanoma: a clinical pathological analysis of the criteria for diagnosis and prognosis. Cancer 6:1, 1953.
- 5 Kruger, G. O. Textbook of oral surgery. Ed 3. Saint Louis, 1968.

Task Force on Continuing Education . . .

Continued from page 84

as the stimuli to attend. Similar arrangements might be made in St. John, New Brunswick; Prince Albert, Saskatchewan; Trois Rivières, Quebec; Virden, Manitoba; Lethbridge, Alberta; Charlottetown; Prince Edward Island; or other similar towns.

Auxiliary personnel would be cared for in the same manner.

It is evident from the "questionnaire" that this is required by the profession. At present, dental faculties provide some instruction. However, they cannot cope with the demand which will be placed on them, if and when continuing education becomes mandatory across the whole country. The local co-ordinators would have to receive an honorarium and some organization expenses. This development of a continuing education resource centre would be additional to the present service given by the faculties of dentistry but, in all probability, some faculty personnel would be used in teaching. Choice of educational institutions and hospitals in the various

locales for presentation of courses would be considered advisable because of the availability in these locations, of lecture rooms and other necessary equipment. Various methods of delivery would be tried, e.g., study groups, attachment of dentists to specialist orthodontists, oral surgeons, periodontists, etc., on a half day to one day per week basis. Conjoint study sessions with medical and other health science professionals can also take place with this approach, to the advantage of all. Peer review would be used to evaluate change in an individual's approach to problem management. Use of various instructional media would be evaluated.

4. That the Canadian Dental Association publish lists of available resource personnel and materials for suitable courses through the co-ordinator.

5. That the Canadian Dental Association provide for self-assessment examinations through the co-ordinator to increase awareness of need for continuing education.

6. That the accreditation system of undergraduate courses take into account the availability and awareness or need for continuing education in dentistry.

7. That governments be made aware of need to support continuing education in dentistry, both in tangible and intangible forms. In the latter, tax relief for continuing education expenses is essential and such expenses should be considered a legitimate practice expense.

8. That selected credits, built up through continuing education courses, be considered satisfactory to provide an upward mobility for auxiliary personnel within the profession and that the Canadian Dental Association, through a national accreditation system, provide for this action.

9. That the Canadian Dental Association assist in the development of a uniform credit system in a national sense.

1. Hall, O. Utilization of Dentists in Canada. Royal Commission on Health Services, Queen's Printer, Ottawa (1965).
2. D. L. Lewis (personal communication).

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ALBERTA — Bassano. Small town 80 miles east of Calgary on Trans-Canada Highway. Drawing area of 10,000 with no competition. Office space available. Equipment needed. Three M.D.'s live in Town. Write or phone Dr. W. Shydowski, M.D., Box 158, Bassano, Alberta. Phone 472-3833.

ALBERTA — Fort McMurray. Associate or Acquirement of practice. Heavily booked, very active practice involving all phases of dentistry. High gross income. Four fully-equipped operatories, lab, etc. space available for fifth operator (for which plumbing installed). Fully qualified staff. Hygienist available on part time basis. Present owner wishing retirement. Fort McMurray is a rapidly expanding town of 18,000. Hunting, boating, fishing, golf. 283 miles paved highway North of Edmonton. PWA flights daily. Write Fort McMurray, Box 5327 or telephone collect 743-2835 or 743-2961.

BRITISH COLUMBIA — Southern Interior. Very, very attractive and lucrative practice for sale. Dentist-owned new clinic with two associates. Room for expansion as clinic was built with an eye for future expansion. Practice now with two and a half dentists grossing a quarter million a year. If desired owner would stay on in an associate role part time. Town itself offers everything for the sportsman. Perfect situation for someone who wants to move to B.C. and either work full time or retain present owner and work part time. Please reply to CDA Box No. 1558.

BRITISH COLUMBIA — Victoria. For sale: Two fully equipped modern operatories in a three operator practice. Preventive oriented family-type practice. Shared reception and business areas and dark room. Preliminary short-term rental with option to purchase if philosophies of practice are compatible would be preferred. Please reply to CDA Box No. 1554.

ONTARIO — Ajax. Office for rent. Three operatories, x-ray room. Please contact Dr. J. T. Hing, (416) 259-6597 bus. or 244-8234 home.

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ONTARIO — Niagara Peninsula. Well laid out and decorated. Modern equipment, excellent growth. Call (416) 356-8960.

ONTARIO — Ottawa. Downtown, 4 operator office. Fully equipped lab with technician on premises. Suitable for 2 dentists on a cost-sharing basis. One dentist already well established — will provide referrals. Telephone (613) 232-0903 or (613) 225-4782.

ONTARIO — Sarnia. Preventive practices for sale or associateships. Modern 1300 sq. ft. Five operator office. Four operatories equipped, excellent gross with four day week. Purchase of equipment optional. Available immediately. Contact Dr. I.R. MacDonald, 3850 Ronald St. Windsor. (519) 969-9749 or 258-5912.

ONTARIO — Toronto — Central. 14 yr old, well-established, quality practice for sale. Gross-net well above average on present 24 hr. wk. Ideal for young to mid-age ambitious practitioner. Very interested enquiries only, please, at (416) 482-2136.

ONTARIO — Toronto. Dental practice for sale, downtown Toronto. Please reply to CDA Box No. 1563.

ONTARIO — Toronto. Pickering Medical Bldg. Modern offices available for immediate occupancy. In new building. Single suites or open space for associateship available. Three floors with 6000 sq. ft. per floor. Ample parking. Located on Kingston Rd. close to Pt. Union, this area has no similar professional offices and is the fastest growing residential tract on Metro's outskirts. Call Ron Littlemore, Michael Jay Real Estate Brokers, (416) 445-8822.

QUEBEC — Banlieu de Montréal. Pratique à plein ou demi-temps offerte à un dentiste pour partager bureau et clientèle avec un confrère. Tout équipement fourni, 2 salles complètes. Ouvert à toutes suggestions. Appeler Mlle Andrée: (514) 842-7954.

SASKATCHEWAN — Rosetown. Good opportunity for two dentists in lovely air conditioned office. Six operatories with some equipment to buy or lease. No capital required. If you are thinking of setting up a dental practice in Saskatchewan, come look at this practice and discuss the possibilities. Practice available immediately. Contact Dr. S. Dovich — 882-2123 or Dr. F. Potter 882-3511.

ONTARIO — Toronto. Dental office space available on Eglinton at Yonge Street. One large operator with plumbing, electricity, etc. and laboratory. To share waiting room, reception area, dark room, recovery room, all furnished. Plenty of space with low overhead. Dental technician suite attached. Enquiries — Dr. R. Murray at (416) 483-3355.

ASSOCIATESHIP AVAILABLE

BRITISH COLUMBIA — Central Interior. HELP! Due to death of young associate we have an office and a town with no dentist. Excellent opportunity for right applicant. A short associateship is offered with a view to purchase. B.C. qualifications preferred. Please reply to CDA Box No. 1562.

BRITISH COLUMBIA — Gibsons Sunshine Coast. A resort area just outside Vancouver. Wanted: an associate for new office in Gibsons. Telephone Dr. Webb (604) 886-7005 evening or write to The Dental Centre, RR #2, Gibsons.

BRITISH COLUMBIA — North East — Fort Nelson. Associate wanted with or without view to partnership. Chance to earn a high income in a stress free environment in a progressive, preventive, four handed practice. Good recreational facilities, include new curling rink, indoor swimming pool, hunting, fishing, cross-country skiing and horseback riding. Write Dr. J. Morris at P.O. Box 958, Fort Nelson, B.C. V0C 1R0 or phone (604) 774-6444 days or 774-2484 evenings.

BRITISH COLUMBIA — Victoria. Young, associate dentist required. Four-chair modern operatories. Strictly medical-dental building (opposite Jubilee General Hospital). General anaesthesia privileges. Family-oriented practice. No capital outlay. Reply: Dr. B. Rauch, #310 — 1900 Richmond Ave., Victoria, B.A. V8R 4R2.

BRITISH COLUMBIA — Victoria. Associate required to join other dentists in a very modern total patient care oriented general practice in sunny Victoria. Surplus of appreciative patients, new equipment, pleasant uncrowded office surroundings, beautiful views from operatories. Vancouver Island is a year round recreational paradise combining the best climate in Canada with immediate access to all urban and rural social and recreational facilities. People are friendly here. Dr. John Bidgood, 6111 Patricia Bay Highway, Victoria, B.C. V8Y 1T5 (604) 652-2521 Mon-Wed.

ONTARIO — Amherstview. Rapidly growing suburb of Kingston. Two adjacent identically equipped operatories and separate operator for hygienist. Write CDA Box No. 1559 or phone (613) 272-2682 during business hours.

ONTARIO — London. Associateship available full or part time in a long established practice. All phases of general dentistry. For further information reply to CDA Box No. 1561.

ONTARIO — London area. An associate to work in a Health Centre located a short distance west of London, with one dentist and auxiliaries, and in co-operation with the medical personnel, pharmacist and administrative staff. This is a private practice type of arrangement with financial terms which will be negotiable. A one year minimum commitment will be required, with a longer term possible if agreeable to all concerned. This position could be attractive to the 1976 graduating class or a dentist who wishes to relocate. Please reply to Southwest Middlesex Health Centre, P.O. Box 219, Mt. Brydges, Ontario, N0L 1W0.

ONTARIO — London. ASSOCIATE REQUIRED immediately. This practice has had an associate for 10 years. This is an opportunity to become a partner in a busy practice in two years. Apply — Dr. L. V. Shankman, 714 Dundas St., London, Ont. (519) 432-1531.

ONTARIO — Oshawa. General practice in high insurance area. Present associate (7 years) leaving for U.S.A. Second practice booked five weeks ahead. For further information contact Dr. Peter Zakarow, 172 King Street East, Oshawa. Phone (416) 576-3740.

ONTARIO — Ottawa. Associate required to work with two (2) other dentists in new dental clinic.

Dentiste recherché pour travailler en association avec deux (2) dentistes dans une clinique moderne. Reply to — Répondre — CDA Box No. 1550.

ONTARIO — Shelburne. Associate required. For preventive oriented practice in fast growing small town 60 minutes northwest of Toronto, newly renovated large modern office. Exceptional drawing area. Arrangements open to the right person. Reply to Dr. R. G. Bond, P.O. Box 10, Shelburne, Ontario L0N 1S0. Telephone (519) 925-3530 office or (519) 925-2518 home.

ONTARIO — Subdury. Excellent associateship available in a well established progressive practice. This group practice is presently made up of eight operatories, two dentists, one hygienist and a competent office staff. Please reply CDA Box No. 1552.

ONTARIO — Toronto. Associate — Dental General Practice in east-central Toronto Medical-Dental Group. Apply Dr. M. Roher — 966-3641, 500 Parliament Street, Toronto, Ontario. M4X 1P4.

ONTARIO — Toronto. Associate required for established 2 man general practice in Mid-Toronto. Progressive practice pattern and high income potential. Long term possibilities. Please reply CDA Box No. 1555.

ONTARIO — Winchester. Associate required — full or part time for busy general practice in Winchester, Ont. Two thousand (2,000) sq. ft., two year old building has Panelipse, Denture Therapist, and Preventive Control program. Hospital privileges available. Present associate leaving for personal reasons. Contact Dr. R.D. Wells, Box 729, Winchester, Ont., L0C 2K0. Phone (613) 774-2616 or (613) 448-2889.

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Applications are invited for a full-time position in Oral Diagnosis/Radiology. Applicants must be a graduate of an accredited graduate program in the field. Salary and academic rank depend on qualifications and experience. Intramural part-time practice allowed. Enquiries, with current curriculum vitae, should be submitted to:

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University of Alberta
Edmonton, Alberta, Canada T6G 2N8

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ALBERTA — Lac La Biche. Excellent opportunity for a resident dentist in this recreation community, 140 miles northeast of Edmonton and 180 miles south of the Athabasca Tar Sands. With an expanding town population of 2,000 and a trading area population of 7,000, Lac La Biche offers an ideal setting for work and for sporting enjoyment. A dental facility, partially equipped, with portable units and with some permanent equipment is available for rent. No other dentists are currently practising in the trading area. An excellent opportunity in booming northeastern Alberta. Phone (403) 623-4140 or write John F. T. Scott, Economic Development Coordinator, Box 995, Lac La Biche, Alberta.

BAHAMAS — Nassau. TAX-FREE INVESTMENT OPPORTUNITY — Returns 10-12% tax free — Proven Business — established 10 years — minimum participation \$10,000 — absolutely confidential — Write Box 804, Station "B", Willowdale, Ontario M2K 1R1 or phone (416) 424-2908.

NOTICE — VANCOUVER, B.C. — DENTIST

The Downtown Community Health Society requires full time dentist to start immediately. Working with low income patients of Vancouver's downtown east side area.

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Contact: Carl L. Archer, Director
373 East Cordova Street, Vancouver, B.C.
Phone: (604) 685-2744 or 685-7381

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MANITOBA — Winnipeg. Oral Surgeon certified to practise in Manitoba required for busy Winnipeg practice. Object partnership. Please submit qualifications and curriculum vitae to CDA Box No. 1560.

ONTARIO — Eganville. Pleasant community in the Ottawa valley requires dental surgeon to take over well established practice in modern medical centre. Contact R. L. Tracy, Secretary, Eganville Development Ltd., Box 310, Eganville, Ontario.

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The Department of Dentistry is expanding its numbers of academic staff by the establishment of the above additional full time clinical posts for which applications are invited.

All applicants, in addition to holding a degree acceptable without examination for registration by the Dental Board of Queensland, should also hold a higher degree or diploma in dentistry, have experience of teaching in their respective fields, and a record of published work. Quote Reference Nos. Reader, B57875, Snr. Lect. B57975, Lecturer (Rest. Dent.) B58075, Lecturer (Orth.) B58175, Lecturer (Perio.) B58275. 12th March, 1976.

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Additional information and application forms are obtainable from the Staff Officer, University of Queensland, St. Lucia, 4067.

UNIVERSITY OF MARYLAND — ORAL DIAGNOSIS

The University of Maryland Dental School is seeking a Chairperson for its Division of Oral Diagnosis. This full time position offers very desirous growth potential for individuals with demonstrated competence in dental education and research, and possessing an aptitude for administrative skills. Salary and rank commensurate with education and experience. The University of Maryland is an equal opportunity employer and invites women and minorities to apply. Interested individuals should send inquiries and their curriculum vitae no later than March 5th, 1976 to:

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Department of Pediatric Dentistry
University of Maryland Dental School
666 West Baltimore Street
Baltimore, Maryland 21201, U.S.A.

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OPPORTUNITY WANTED

BRITISH COLUMBIA — Victoria. Seek part time position involving salary, percentage, straight rental, or other form of association. Experienced in all phases of dentistry, ethical, efficient, personable. Have some patient following. Willing to fit-in hours. Please reply to CDA Box No. 1556.

BUSINESS INVESTMENT

Canadian lawyer and businessman, permanent resident 10 years in tax-free Bahamas seeks associations which can be mutually beneficial to professionals, businessmen, etc. — absolutely confidential — free to travel anywhere — Write Box 804, Station B, Willowdale, Ontario M2K 1R1 or phone (416) 424-2908.

UNIVERSITY OF TORONTO FACULTY OF DENTISTRY

Applications are invited for the position of Director of Clinics, effective July 1, 1976. His/her duties will include administration of the total dental clinical activities in undergraduate, graduate and auxiliary training, an involvement and interest in teaching, clinical research and experimentation with new models of health care delivery. The candidate should have a wide background and experience in clinical and academic dentistry. The appointment will be at a senior professional level. The salary is according to qualifications and experience.

Applications should be submitted immediately to:

Professor A. M. Hunt,
Faculty of Dentistry,
University of Toronto,
124 Edward Street,
Toronto M5G 1G6, Canada

They will not be considered after March 15, 1976.
Please enclose a curriculum vitae.

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BRITISH COLUMBIA. Cabinets-operatories-labs.-reception-etc. We are manufacturers of cabinet furniture of high quality with many installations in government and professional offices. Made precisely to your specifications. May we quote on your requirements? For further details write CRANE WOODCRAFT INDUSTRIES, 1009 River Drive, Richmond, B.C. (604) 278-9681.

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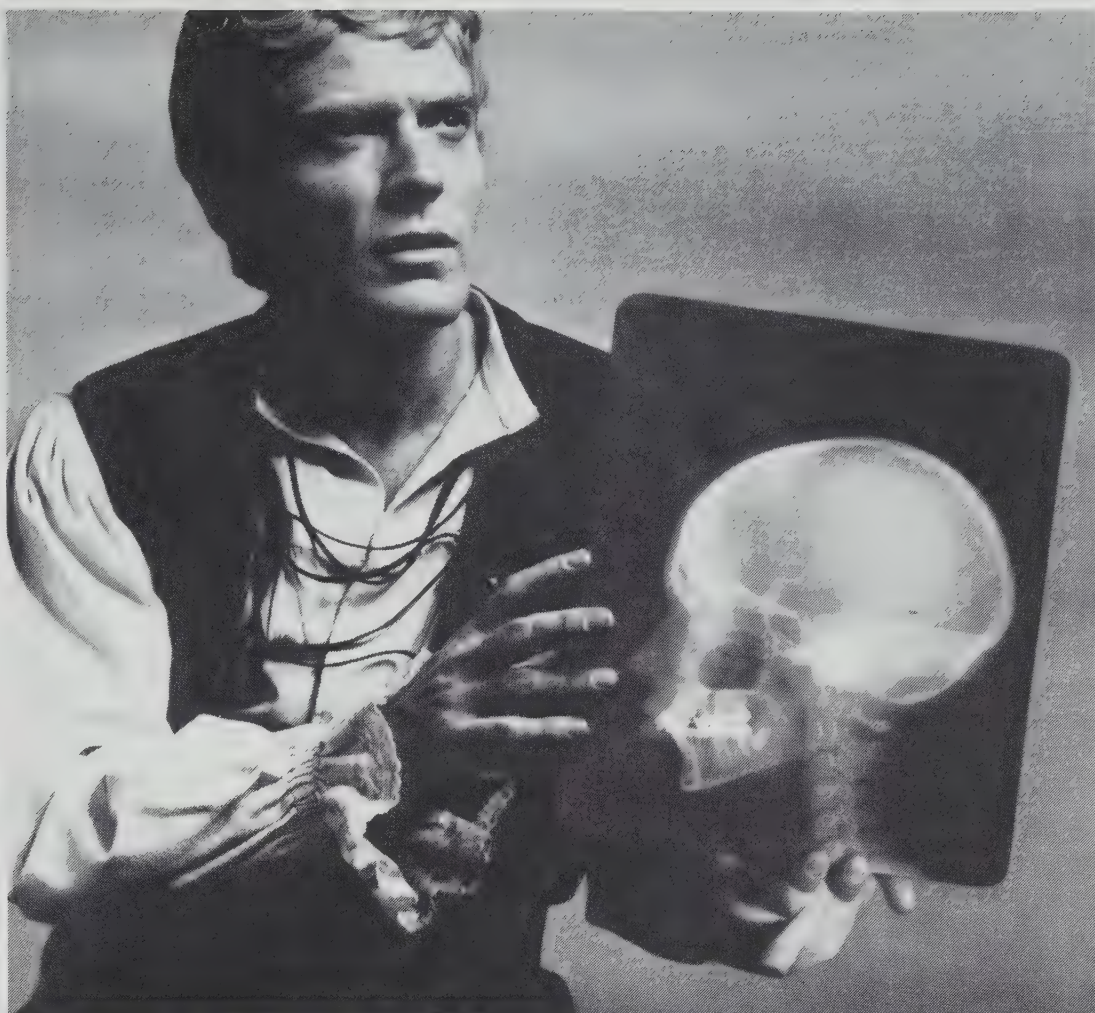
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Ottawa, Ontario
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UNIVERSITY OF ALBERTA FACULTY OF DENTISTRY

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Applications are invited for a full-time position in Periodontics. Applicants must be a graduate of an accredited graduate Periodontics program. Salary and academic rank depend on qualifications and experience. Intramural part-time practice allowed. Enquiries, with current curriculum vitae, should be submitted to:

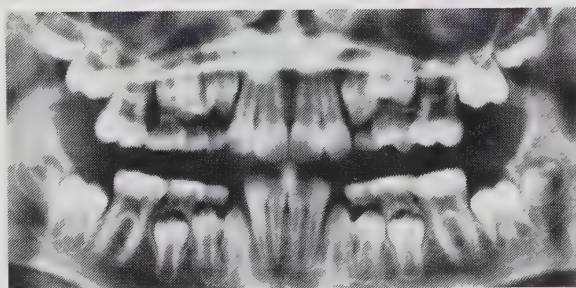
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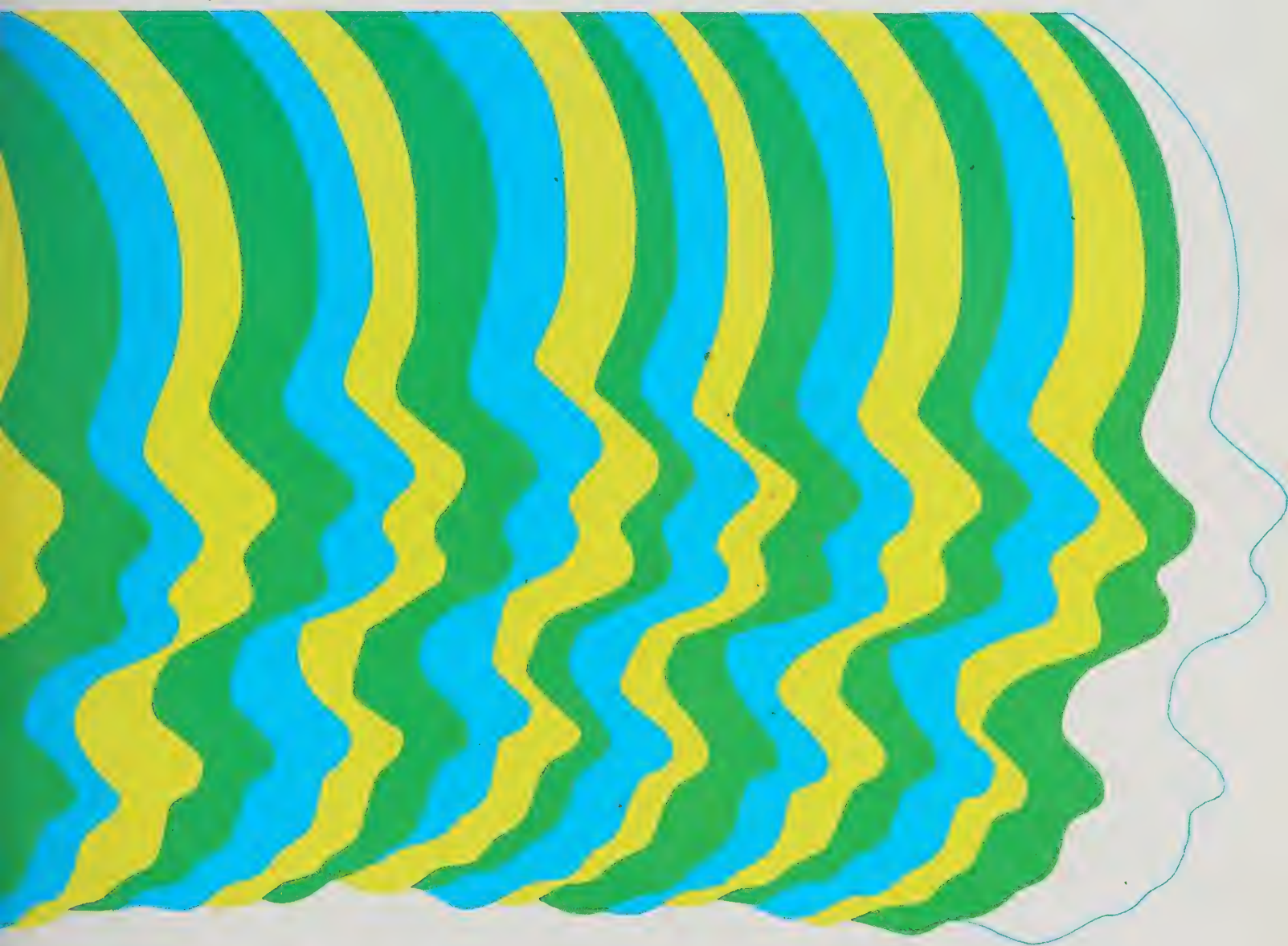
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Canadian Dental Association/Association Dentaire Canadienne



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1. Novak, A.J.: *Oral Surg.* 34:34, July, 1972.



Dentists Forewarned

NEW REGULATIONS ON MANUFACTURE AND IMPORTATION OF DENTAL DEVICES

Canadian dentists are warned to pay particular attention to the new Medical Devices Regulations which go into effect April 1. These affect the manufacture, sale and importation of all dental materials and devices whether by a distributor, supplier or individual dentist.

The regulations are designed to protect the public against harmful products and hold the manufacturer, seller and importer responsible for a broad range of requirements. Chief among these is that no one may sell a device or import a device into Canada for sale unless the nature of the benefits claimed or the performance characteristics claimed are justified by tests and evidence satisfactory to the Health Protection Branch of National Health and Welfare.

Discussions between the Health Protection Branch and the CDA Committee on Dental Materials and Devices are being held. Aspects of the regulations require interpretation as far as the private practitioner is concerned. A full report will be made as soon as possible.

The CDA Journal has had a policy for many years of scrutinizing the therapeutic and clinical claims of all products advertised in its pages. It is assisted by the Committee on Dental Materials and Devices. These new regulations mean it will be necessary to apply our standards more rigorously than ever.

Copies of the Medical Devices Regulations under the Food and Drug Act are available from the Queen's Printer, Ottawa.

BRITISH DENTIST CRITICIZES BDA ENDORSEMENT OF FLUORIDE DENTIFRICES

A flurry of publicity has been aroused by the controversy flourishing in the pages of the British Dental Journal between professor Douglas Jackson of Leeds University and other professionals over the BDA's endorsement of fluoride toothpastes. A Globe and Mail report spread the controversy to Canada.

Dr. Jackson claims advertising for Crest is misleading because the public tends to interpret the advertising as a claim that Crest "prevents" cavities. Dr. Jackson is of the opinion that fluoride toothpastes can have marginal benefits but do not reduce dental caries by the amount stated in the ads. He also says that the effect of fluorides is to delay rather than to reduce cavities.

British experience cannot be extrapolated to the Canadian or American scenes where extensive testing has been done and where advertising claims are permitted only when fully supported by research and clinical facts. All advertising which carries the CDA Seal of Recognition is closely scrutinized to meet stringent Association criteria. In addition, television and radio claims must also meet with the approval of the Food and Drug Directorate in Ottawa.

Avertissement aux dentistes

NOUVEAUX REGLEMENTS SUR LA FABRICATION ET L'IMPORTATION D'APPAREILS DENTAIRES

Un avertissement est lancé à l'intention des dentistes canadiens en ce qui concerne les nouveaux règlements sur les appareils dentaires, qui entreront en vigueur le 1er avril. Ceux-ci se rapportent à la fabrication, à la vente et à l'importation de toutes les fournitures et appareils dentaires, pour les distributeurs, les fournisseurs ou les dentistes.

Ces règlements sont destinés à protéger le public contre les produits nocifs et à attribuer aux fabricants, aux vendeurs et aux importateurs, la responsabilité de répondre aux conditions requises. Au premier plan de ces conditions, il est stipulé que personne ne peut vendre un appareil, ou ne peut importer un appareil au Canada dans l'intention de le vendre, que lorsque la nature bénéfique ou les particularités de fonctionnement sont confirmées par la suite de tests et que la Division de la protection de la santé du Ministère de la santé nationale et du Bien-être social se déclare satisfaite des faits présentés.

Des pourparlers sont actuellement en cours entre la Division de la protection de la santé et le Comité de l'ADC sur les fournitures et appareils dentaires. Certains aspects des règlements nécessitent de plus amples explications destinées aux praticiens privés et un rapport détaillé sera présenté dès que possible.

Le Journal de l'ADC suit depuis de longues années une politique qui consiste à étudier minutieusement tous les bienfaits thérapeutiques et cliniques revendiqués pour les produits dont on fait la publicité. Ce Journal est assisté dans cette tâche par le Comité sur les fournitures et appareils dentaires. Les nouveaux règlements signifient que les normes seront appliquées plus rigoureusement que jamais.

On peut obtenir des exemplaires des Règlements sur les appareils médicaux aux termes de la Loi sur les aliments et drogues chez l'Imprimeur de la Reine à Ottawa.

LES DENTISTES BRITANNIQUES CRITIQUENT LA

RATIFICATION ACCORDEE PAR LE BDJ AUX DENTIFRICES A FLUORURE

Beaucoup d'encre a coulé en ce qui concerne la controverse qui règne dans les pages du British Dental Journal entre le Professeur Douglas Jackson de Leeds University et d'autres membres de la profession au sujet de la ratification accordée par le BDA aux dentifrices à fluorure. A la suite d'un compte rendu publié à cet égard par le Globe and Mail, cette controverse s'est maintenant étendue au Canada.

Le Dr Jackson affirme que la publicité de Crest est fallacieuse et porte à induire le public à croire que Crest "empêche" les caries. Il estime que les dentifrices à fluorure, tout en présentant certains bienfaits secondaires, ne réduisent pas les caries dentaires, comme l'annonce la publicité. Il déclare également que le fluorure retarde plutôt qu'il ne diminue les caries.

L'expérience britannique ne peut s'appliquer au Canada ou aux Etats-Unis, où des tests approfondis ont été effectués et où les faits affirmés dans une annonce publicitaire doivent être pleinement appuyés par des recherches ainsi que par des résultats cliniques. Toute publicité portant le cachet de ratification de l'ADC est minutieusement étudiée pour faire face aux critères rigoureux de l'Association. De plus, les annonces télévisées et radiodiffusées doivent également recevoir l'approbation de l'Administration des aliments et drogues à Ottawa.

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Special Features

Developing infant occlusion:

The developing occlusion of infants and related feeding methods and oral habits — Simpson and Cheung

Part I: Methodology and results at 4 and 8 months 124

Part II: Discussion and conclusions 135

CDA Council Report: Uniform Coding System and Standard Claim Form 122

Regular Features

Letters to the editor 106

Dentistry in the news 112

Les actualités dentaires 118

Deaths 114

Articles

Oral pathology:

Cementum in cleidocranial dysostosis — Chapnick and Main 139

Management of an odontogenic keratocyst: Report of a case — Goodin and Frost 144

Classified advertising 149

Advertisers' index 117

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Canadian Dental Association.

Announcements/Avis

Information about other meetings or courses, including American continuing education courses, may be obtained by writing to CDA headquarters.

Canadian Dental Association
1976, Edmonton, Alta, Sept. 12-15.

Fédération Dentaire Internationale
1976, Athens, Greece, Sept 26-Oct 2;
1977, Toronto, Oct 22-28.

Canadian Meetings

College of Dental Surgeons of Saskatchewan, at Prince Albert, Sask.
May 6-8, 1976. T. K. Tomlinson, 317 Medical Building, Prince Albert.

Ontario Dental Association, at Four Seasons Sheraton Hotel, Toronto. May 9-12, 1976. Mrs. W. C. Durham, 230 St. George St., Toronto, Ont. M5R 2P1.

Les Journées Dentaires du Québec, at Queen Elizabeth Hotel, Montreal. May 12-16, 1976. Dr. M. R. Lang, 5171 Decarie Blvd., Montreal, Que. H3W 3C2.

Ontario Society of Clinical Hypnosis, at Royal York Hotel, Toronto. May 21-23, 1976. Dr. D. L. Stewart, 135 Division St., Guelph, Ont. N1H 1R7.

Atlantic Provinces Dental Convention, at Fredericton, June 6-9, 1976. P. F. Manson, 564 Queen St., Fredericton, N.B. E3B 1B9.

The Association of Canadian Faculties of Dentistry/L'Association des Facultés Dentaires du Canada, Ninth Biennial Conference on Dental Education and Research. At University of Alberta, Edmonton, June 14-16, 1976. Dr. G. W. Myers, 3042 Dentistry Pharmacy Centre, University of Alberta, Edmonton, Alta. T6G 2H7.

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International Association of Oral Myology, at Skyline Hotel, Ottawa. June 17-19, 1976. Ms. Z. Strock, P.O. Box 2201, Denton, Texas 76201, USA.

Canadian Society of Oral Surgeons, at Halifax. July 24-27, 1976. D. J. Murphy, 1773 Beech St., Halifax, N.S.

Canadian Occlusion Symposium, at Chateau Lacombe, Edmonton. Sept. 12-13, 1976. J. N. Nasedkin, #415, 925 West Georgia, Vancouver, B.C. V6C 1R5.

Montreal Dental Club Pre-Convention Seminar, at Montreal. Nov. 13-14, 1976. Miss M. Komarnicka, 4166 St. Catherine St. W., Montreal 215, Que.

Montreal Dental Club Fall Clinic, at Montreal. Nov. 15-17, 1976. Miss M. Komarnicka, 4166 St. Catherine St. W., Montreal 215, Que.

International Meetings

Dental Association of South Africa, at Pretoria, S. Africa. March 11-14, 1976. H. Heydt, DASA Pvt. Bag 1, Houghton 2041, Transvaal, S. Africa.

Finnish Dental Association, at Helsinki. March 18-20, 1976. T. Ohtola, Bulavardi 30 B, 00120 Helsinki 12, Finland.

International Workshop on Removable Partial Dentures, at Cardiff, Wales. April 1-2, 1976. W. M. Murphy, Dental School and Hospital, Heath Park, Cardiff, CF4 4XY, Wales, U.K.

American Academy of Oral Pathology, at Atlanta. April 4-9, 1976. G. G. Blozis, College of Dentistry, Ohio State University, Columbus, Ohio 43210, USA.

International Periodontic-Prosthetic Conference, at Tel Aviv, Israel. April 10-14, 1976. First Inter-

national Periodontic-Prosthetic Conference, Suite 1426, 342 Madison Ave., New York, N.Y. 10017, USA.

Annual Dental Seminar of Mexico, at Iztapan de la Sal, Mexico. May 16-20, 1976. Dr. C. H. Woodworth, Horacio 1840, Mexico 10, DF.

Symposium on Geriatric Dentistry, at Tel-Aviv, Israel. May 18-20, 1976. H. J. Levin, 2006 Bathurst St., Toronto, Ont.

British Dental Association, at Blackpool, England. June 14-17, 1976. S. R. Bragg, 64 Wimpole St., London W1, England.

European Organization for Caries Research, at Szeged, Hungary. July 15-17, 1976. Prof. K. Toth, 6720 Szeged, Lenin Krt. 64-66, Hungary.

International Association of Dental Students Annual Congress, at Bern, Switzerland. July 30-Aug. 9, 1976. Dr. T. A. Shapero, 170 The Donway West, Ste. 108, Don Mills, Ont. M3C 2G3.

Continuing Education Courses

The Quebec Association of Periodontists, at Jewish General Hospital, Montreal. April 23-24, 1976. Speaker: Dr. Saul Schluger, Associate Dean, Graduate Dental Education, University of Washington. Topic: Horizons of Periodontics in 1976. Fee: \$100. Registration: Dr. A. Shuster, 6600 Trans Canada Highway, Suite 715, Pointe Claire, Que. H9R 1C2.

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Chargé des chroniques de nouvelles et scientifiques du journal rédigées en français. Les fonctions de ce poste comprennent la rédaction en français et en anglais des nouvelles concernant le Québec, la traduction des nouvelles et résumés scientifiques de langue anglaise, ainsi que la recherche d'articles scientifiques de langue française et leur adaptation aux normes et au format du Journal.

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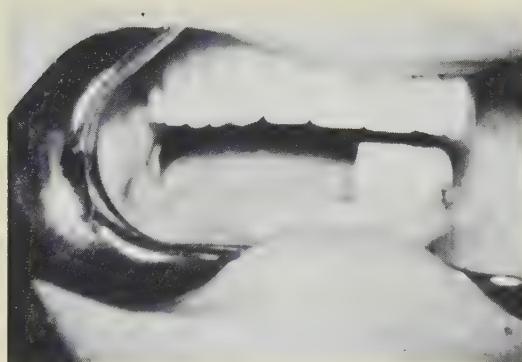
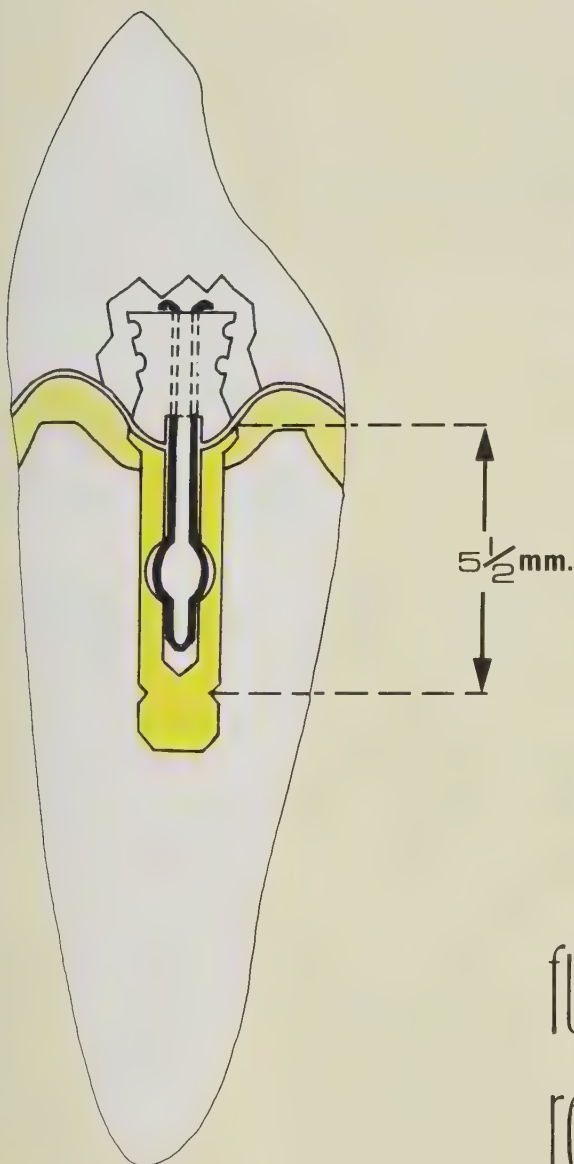
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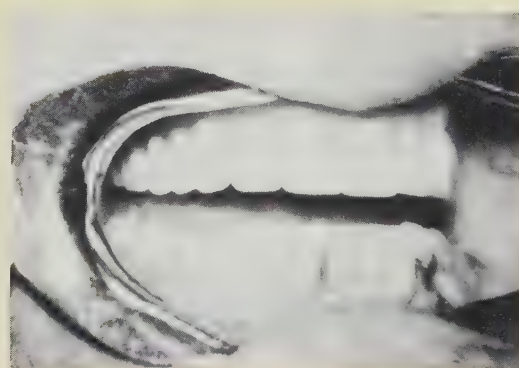
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Occlusion in Periodontics

The use of the term principles in articles on occlusion is unfortunate and more than in any aspect of dentistry, the subject of occlusion is sorely lacking on fundamental truths. The opinion expressed in this article (Principles of Occlusion in Periodontics, Neil Basaraba, DDS, MSD) respecting the use of occlusal adjustment in periodontics is based not on a principle but on an unacceptable premise that maximum intercuspation (centric occlusion) in other than centric relation is a discrepancy incompatible with a healthy periodontium. Advocacy by the author, of the "self-evident need" to remove such undesirable influences appears to be an attempt to resurrect the prophylactic occlusal adjustment.

In the vast majority of individuals, centric occlusion (habitual, acquired or functional occlusion) is a closure position of maximum intercuspation anterior to centric relation. Centric relation or terminal hinge, a retruded border position of the jaws, is not a functional position and can usually be reached only by manipulation of the patient's mandible by the dentist. Inevitably, a forward slide occurs between these positions. For most of us, this slide is normal and to conclude that such slides are discrepancies is quite unwarranted. To further suggest that a slide observable in the young in association with gingivitis should be removed to prevent future periodontitis provokes the strongest protest. Given the high prevalence of gingivitis in the young and the ubiquity of CR-CO slides, this is a prescription for occlusal adjustment on an almost universal basis.

There is documented evidence that excessive occlusal stress can alter the pathways of inflammation from an established periodontal pocket. Direct invasion of the periodontal ligament by inflammation for this reason is accepted as a cause of *some* intrabony defects. Occlusal adjustment in this and other instances of trauma (tissue injury) from occlusion is an important part of conventional periodontal therapy. The centric relation position of the jaws is used in periodontics, as it is in fixed and removable prostheses, because it is a reproducible point of reference which can be recognized and repeatedly recorded with a fair degree of accuracy. It is not used because it is an

important functional position nor because slides from this retruded point to centric occlusion are abnormal or potentially pathogenic to the periodontium, although this is a common misconception.

Prophylactic occlusal adjustment has not been rejected for the rather inconsequential reason, suggested by the author, that it might provoke subsequent discomfort. It has been unacceptable for many years for the very compelling reason that no evidence exists which warrants its use in the prevention of periodontal disease.

*Russell G. Stephens, DDS, MSc
Professor, Dept. of Oral Medicine
University of Western Ontario*

Author's comment:

I wish to decline to comment on Dr. Stephens' criticism of "Principles of Occlusion in Periodontics and General Dentistry." The article as it appeared has been edited to such a degree that it is devoid of explanations and qualifications that must accompany discussions on occlusion. Without these elaborations, statements appear to espouse dogma and suggest a partial attitude regarding the subject matter.

Dr. Stephens' comments are justified; he however, will be presented with the original manuscript and I trust that his concern will be alleviated regarding my proposals of "prophylactic occlusal adjustment"; my obsession with discrepancies between centric relation and centric occlusion; my misconception that a slide will precipitate a periodontitis; and that I propose occlusal adjustment for everyone.

It has been my experience that if one discusses the controversial subject of occlusion one must qualify every utterance and propose an exception to every rule. Unfortunately this leads to an increased volume of writing. I was informed that some editing would be necessary. The mail strike prevented an opportunity to review the abridged version. I suggested that an abridged version was not desirable because of the aforementioned shortcomings and potential misinterpretations.

It is difficult to accept stringent editing for the sake of space when perusal of the December issue reveals that 50 per cent of its

volume is devoted to commercial advertising and 20 per cent to clinical and academic material.

*Neil Basaraba, DDS, MSD
925 West Georgia St.
Vancouver, B.C.*

Editor's comments

As one responsible for approaching Dr. Basaraba to write the article on "Principles of Occlusion," I wish to apologize to him for my inability to have him approve the edited version of his article prior to its publication. The mail strike, combined with the deadline for submission of the series of articles, regrettably made it impossible for me to do so.

As such, I may take the liberty of responding to Dr. Stephens' comments:

1. Regardless of the theory of occlusion that one believes in, the proponents of all known theories will accept, in the natural dentition, maximum intercuspation in other than retruded contact position, i.e. in centric occlusion. It is the R.C.-A.C. slide or discrepancy that under certain conditions must be removed. This will permit the patient to function in both R.C. and A.C. positions.

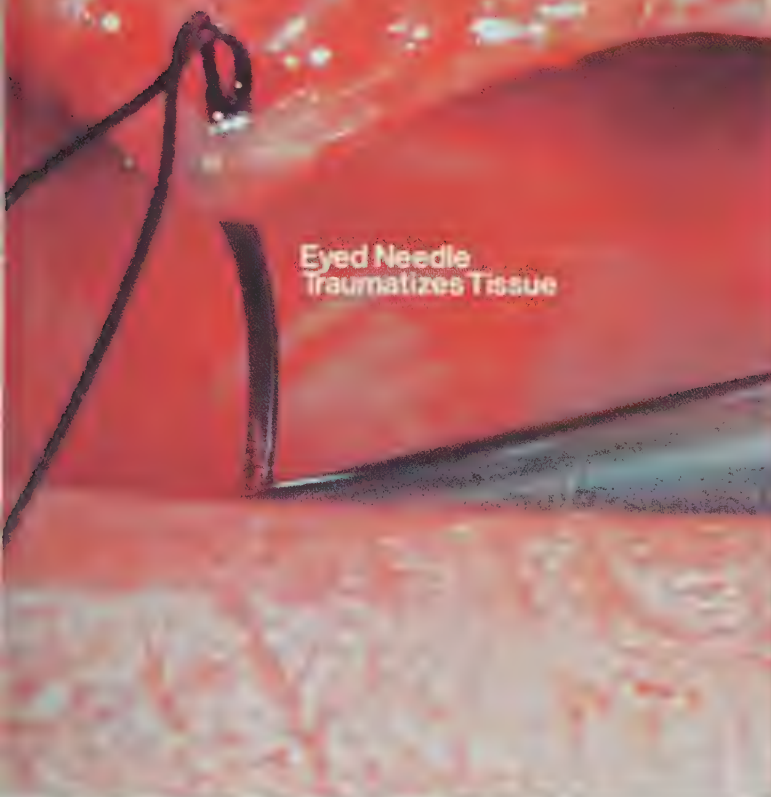
2. The retruded contact position is not only a border position but, in fact, a functional position which is reached routinely during swallowing. Tooth contact may occur occasionally, both during mastication as well as during swallowing; however, actual tooth contact occurs more frequently during swallowing. Also, it is an extended contact and occurs in the retruded position.^{1,2} Occlusion must therefore be free from any deflecting or interfering contacts in the entire functional range in those patients where evidence of trauma from occlusion is present and occlusal adjustment is to be undertaken.

1 Butler, J. H. and Zander, H. A. Evaluation of two occlusal concepts, *Periodont Acad Rev*, 2:5, 1968.

2 Posselt, V. The physiology of mastication, *J West Soc Periodont*, 9:40, 1961.

*B. J. Zulqar-nain, DDS, MS,
Chairman, Division of Periodontics,
University of Western Ontario.*

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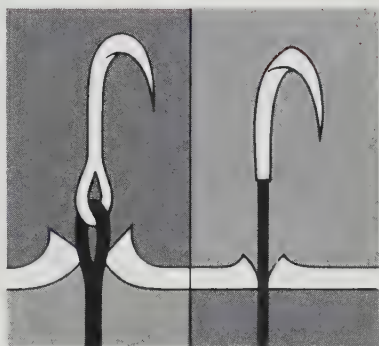


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DENTAL DENTAIRE

Periodontal emergencies

Perhaps I can offer some constructive criticism to the interesting article "Recognition and Treatment of Periodontal Emergencies" by B. Jalaldin Zulqar-nain, which appeared in the December 1975 issue of the Journal. Whilst I enjoyed the article, I must take exception to the recommended treatment of acute herpetic gingivostomatitis. The author accurately states that the disease usually afflicts children under six years of age. I find it strange that the use of "chlortetracycline (aureomycin) 250 mg four times daily for five days, to combat possible secondary infection" is recommended since this drug is causally related to intrinsic staining,¹ and it is being recommended for an age group of children who are in the process of calcifying all their permanent teeth.² Even if the tetracycline were to have been recommended as a mouth rinse rather than systemically, this would not solve the problem since most parents and certainly all pedodontists will verify that children aged three years and under are incapable of rinsing properly. What then should be recommended? The author steers clear of penicillin perhaps because of McDonald's statement,³ that penicillin will fix the virus. However, we should refer back to our student days in pathology, virology, and pharmacology and realize that by the time secondary infection has occurred, the virus has already replicated and that penicillin is the drug of choice, provided that the patient is not allergic to it. The alternative of topical application of chlortetracycline is described by McDonald.⁴

I trust that this criticism is taken in a constructive way, and it should not detract from the overall excellence of the article and indeed the series.

1 Hennon, D. K. *J Indiana Dent Ass* 44:482, 1965.

2 Logan, W. H. G. and Kronfeld, R. Development of the human jaws and surrounding structure from birth to the age of fifteen years. *J Amer Dent Ass* 20:379, 1933.

3 McDonald, R. E. *Dentistry for the child and adolescent*. St. Louis. Mosby, 1969. pp. 212-213.

4 Idem. *Ibid.* p. 228.

D. B. Kennedy, BDS, MSD
Suite 301, 1701 West Broadway,
Vancouver, B.C. V6J 1Y3

I wish to comment on the article "Recognition and Treatment of Periodontal Emergencies" by B. Jalaldin Zulqar-nain in your December 1975 Journal.

As both a practising pedodontist and a teacher I would like to take strong exception to one of the treatment techniques which the author recommends concerning the acute occurrence of herpetic gingivostomatitis.

He states on page 653 that this disease, "usually afflicts children under six years of age." I certainly agree with this statement. However, on page 654 as treatment procedure #5 he recommends the use of "chlortetracycline (aureomycin) 250 mg four times daily for five days to combat secondary infection."

I certainly am loath to believe that Dr. Zulqar-nain really feels that tetracyclines of any type should be prescribed for children under the age of 12 for any reason other than that of being a life saving or prolonging drug of choice.

All dentists, and I am sure all physicians, should be cognizant of the deleterious discoloration side effects caused by tetracyclines, especially chlortetracyclines.^{1,2}

I seriously question the need of any antibiotic for the purpose of preventing secondary infection. I have successfully treated many patients with this viral infection during the last 13 years without any antibiotics at all. The other treatment techniques which are suggested by the author are certainly adequate.

1 Weyman, Joan. The clinical appearance of tetracycline staining of the teeth. *Brit Dent* 118:289, 1965.

2 Idem. Microscopic appearance of tetracycline deposition in human dentin, *J Dent Res* 47:742, 1968.

Franklin Pulver, DDS, MS, FRCD(C),
Associate, Department of Pedodontics,
University of Toronto.

Author's comments

The point made by both Drs. Kennedy and Pulver about the link between tetracyclines and tooth discoloration is very well taken, and the article should have stated that tetra-

cyclines should NOT be used for an age group of children with calcifying teeth.

In regard to the use of aureomycin in the treatment of acute herpetic gingivostomatitis, the following points should be kept in perspective:

1. Reported studies do indicate that AHGS generally afflicts children under six years of age; however, it also afflicts older children and young adults. Because of the nature of my practice, all of the patients that I have seen, have, in fact, been over 10 years of age. My clinical opinion that a much broader age group is involved will be confirmed by many practitioners.

2. The treatment recommended in my article is for the condition of AHGS and not for AHGS in children.

3. Several studies have shown the effectiveness of aureomycin in treating secondary complications associated with AHGS.^{1,2} In fact, Orban³ states "penicillin is ineffective and has been reported to be detrimental, protracting the duration and aggravating the course of the disease. Therefore, its use is contraindicated."

4. Jacobs¹ reported rapid cessation of pain and early disappearance of the lesions. Everett² states that aureomycin may possess some viricidal properties and feels that it has advantages over other antibiotics.

Most importantly, we must remember that we would like to treat the whole patient rather than the dental condition. I would strongly recommend the use of antibiotics in treating secondary complications, particularly in debilitated patients.

1 Jacobs, H. G. and Jacobs, M. H. Aureomycin, its use in infections of the oral cavity. *Oral Surg* 2:1015, 1949.

2 Everett, F. G. Aureomycin in the therapy of herpes simplex labialis and recurrent oral apthae. *J Amer Dent Ass* 40:555, 1950.

3 Orban's Periodontics. Ed 4. St. Louis. Mosby, p. 346.

Kay, L. W. *Drugs in dentistry*. Ed 2. Bristol, John Wright and Sons.

Glickman, I. *Clinical periodontology*. Ed 4. Toronto, Saunders.

Goldman, H. M. and Cohen, D. W. *Periodontal therapy*. Ed 5. St. Louis, Mosby, p. 965.

B. J. Zulqar-nain, DDS, MS,
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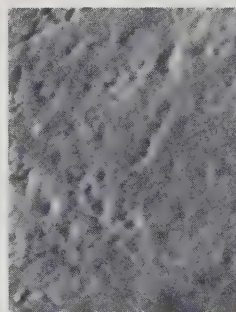
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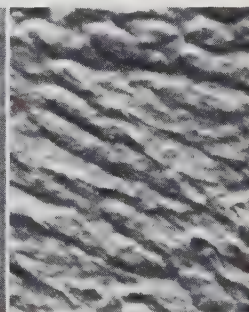
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QUEBEC DENTAL SURGEONS ASSOCIATION CHANGES TACTICS IN BOYCOTT OF PLAN

The Quebec Dental Surgeons Association has changed tactics in its continuing boycott of the government's free welfare dental plan. At a meeting held January 31, the QDSA drafted a telegram to be mailed to the provincial minister of health informing him that Quebec dentists would no longer accept welfare patients on an "emergency only" basis but would treat them like all other patients: that is, charge the patients directly for all treatment. The onus would then be on the welfare patient to get reimbursement from the Quebec Health Insurance Board.

The Association's objection to the plan is based mainly on two key areas: the government-imposed fee structure; and the limitations on treatment allowed to welfare recipients. The

program's payment structure is 53 per cent lower than the recommended scales outlined in the Association's guide for private practitioners. The fees "barely cover operating expenses", according to QDSA.

The Association also charges that, under the plan, welfare recipients are regarded as second class citizens to whom only certain care is permitted. QDSA President Claude Chicoine says that welfare patients "are allowed only one cleaning per year. Should a second cleaning be required, authorization must come from the Quebec Health Insurance Board rather than from the dentist."

Dr. Chicoine also charged that the program discourages preventive dentistry and encourages the pulling of

teeth. He explained that the plan allows a dentist to drain an abscess without charge to a welfare recipient but does not allow him to perform root canal treatment to save the tooth.

Summarizing the Association's objections to the government plan, Dr. Chicoine said: "What we want is a more comprehensive dental plan for welfare recipients in the province; one that includes more preventive dentistry. We want a fee structure that is negotiated with the dentists of Quebec, not one that is imposed by the government. Essentially, what we want is government respect for our profession. We will not accept working conditions arbitrarily imposed upon us."

TORONTO STUDY CLUB SETS UP TRUST FUND WITH CFDE



Arthur J. Breglia (right), president of the Toronto Crown and Bridge Study Club, and Noble Hori, past president, present a cheque for five thousand dollars to Stanley O. Tebbutt, vice chairman of the Canadian Fund for Dental Education.

The Crown and Bridge Study Club of the Toronto Academy of Dentistry has set up a trust fund with the Canadian Fund for Dental Education. The income derived from this fund is to be used in perpetuity by the CFDE.

The official presentation of the initial sum of five thousand dollars was made by Arthur J. Breglia, president of the Crown and Bridge Study Club, and Noble Hori, past president of the Club, to CFDE executives on January 21 at the Toronto offices of the Royal College of Dental Surgeons. The Club plans to contribute more to this trust fund as additional funds become available.

Following the presentation, Dr. Hori congratulated those entrusted with the administration of CFDE for the excellent work they are doing in enhancing the training of qualified teachers in the dental profession and, thus, in improving the quality of graduating dentists in Canada.

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C.W.B. McPHAIL AWARDED FELLOWSHIP BY AMERICAN COLLEGE OF DENTISTS

C.W.B. McPhail, dean of dentistry at the University of Saskatchewan, was recently awarded a fellowship in the American College of Dentists.

Candidates nominated for fellowship are accepted only if they have contributed notably to the advancement of the profession of dentistry by outstanding accomplishments in one or more of the following areas: service to the profession; public service; education; research; clinical practice; or literature-journalism. The basic requirement is that there be clear evidence of leadership and contributions beyond what is normally expected in a practice or a position.

Dr. McPhail has been with the University of Saskatchewan since 1967 and was appointed dean of the College of Dentistry in 1974. He is also professor and head of the Department of Social and Preventive Dentistry and a lecturer in social and preventive medicine. Before joining the University of Saskatch-

ewan, he spent seven years at the University of Alberta, first as associate professor of dental public health and then as chairman of the Department of Community and Public Health Dentistry and assistant dean of dentistry. During four years of that period he was also provincial director of dental services for the Government of Alberta. He was earlier employed by the Government of British Columbia and at one time operated a private practice in White Rock, B.C.

Earlier last year, Dr. McPhail was awarded a fellowship in the Royal College of Dentists of Canada and in 1962 he was granted a fellowship in the International College of Dentists.

His research and publications have related to such areas as the preventive aspects of dental health, the health and social aspects of fluoridation, care of dental emergencies, Denticare, and dental health among central Arctic and Saskatchewan peoples.

DEATHS

Anderson, H. Ross. 76. Bath, Ont. (formerly of Toronto). Royal College of Dental Surgeons of Ontario, 1921. 2-1-76. Survived by Laura (wife), and Cardwell (son).

Chung, Tony Y. C. 35. Delta, B.C. University of Alberta, 1970. 2-1-76. Survived by Eva (wife); Alvin (son); and Charmain (daughter).

Clark, W. Lorne. 66. Conquest, Sask. University of Toronto, 1938. 31-12-75. Survived by Leah (wife).

Comeau, Lin. 71. Kentville, N.S. University of Montreal, 1949. 12-11-75.

Gruer, Willard Paisley. 69. Toronto. University of Toronto, 1929. 1-1-76. Survived by Louise (wife), and John (son).

Histrop, Arthur Ernest. 57. Toronto. University of Toronto, 1943. 7-1-76. Survived by June (wife); Lesley and Lindsay-Ann.

MacIntosh, George K. 70. Halifax. Dalhousie University, 1931. 27-1-76. Survived by Mary (wife); John and George (sons); and Mary and Ann (daughters).

Massicotte, Auguste. 84. Trois-Rivieres, Que. University of Montreal, 1919. January 1976.

McCool, Leonard Hugh. 77. North Bay. Royal College of Dental Surgeons of Ontario, 1921. January 1976.

Shapera, Earl Saul. 68. Montreal (formerly of Saskatoon). University of Toronto, 1930. December 1975.

Williams, Randel M. 45. Sarnia, Ont. McGill University, 1955. 28-12-75.

Wright, James Ewart. 78. St. Catharines. Royal College of Dental Surgeons of Ontario, 1924. 22-1-76. Survived by Edna (wife); James (son); Mrs. A. Wood, Mrs. Cathy Hampson, and Mrs. Linda Reid (daughters).

CDNAA launches independent study program for dental assistants across Canada

The Canadian Dental Nurses and Assistants Association is now offering all dental assistants across Canada the opportunity to obtain a basic dental assisting education through an independent study program administered by the CDNAA Council on Certification.

The program developed by the CDNAA allows two options, both of which are accredited by the Canadian Dental Association. The first option involves the dental assisting program now being offered by the Northern Alberta Institute of Technology. This is essentially a correspondence course, but it requires that the student spend one full week each year at the Institute in Edmonton.

The second option is the CDNAA program which is proposed to start in September, 1976. This is a basic dental assisting program in which the Association will utilize the same program offered by the Northern Alberta Institute, but will eliminate the annual week-long practical evaluation period in Edmonton.

Details of both programs are shown in the chart below. The CDNAA executive is anticipating it will have the resources available to offer this program in French as well as English.

Since many dental assistants in Canada do not have an opportunity to get a formal education in dental assisting, and since it has long been recognized that a trained assistant is infinitely more valuable to her employer, CDNAA is urging all dentists with untrained assistants to encourage participation in this program.

Further information can be obtained by writing to: Canadian Dental Nurses and Assistants Association, 904 Helmcken Drive, Vancouver, B.C. V6B 1B3.

*Elizabeth Purchase
Past-president, CDNAA*

**Northern Alberta Institute
of Technology Program**

**Proposed Canadian Dental Nurses and
Assistants Association Program
(sponsored by CDNAA and NAIT)**

Duration of theory:

— 2½ years; September to June

— 2½ years; September to June

Practical:

— one week per year at the Northern Alberta
Institute of Technology in Edmonton, Alberta

— within the dental office

Pre-requisites:

— employed within a dental office or dental
health unit; written verification from
employer is necessary

— employed within a dental office or dental
health unit with a minimum of 24 months
working experience within the dental field
— letter from employer, or other official from
list given, consenting to act as supervisor
of examinations

— letter from employer, or other official from
list given, consenting to act as supervisor
of examinations

— proof of grade 11 diploma
— membership in the CDNAA during the
preceding year and continuing membership
during the program

Application:

— direct to NAIT prior to August 15,
preceding the upcoming term
— application required every year

— to CDNAA representative prior to August 1,
preceding the upcoming term
— application required every year

Cost:

*approximately \$20.00 per year for books

— tuition for first year: \$128.00

— tuition for second year: \$118.00

— tuition for final year: \$88.00

*subject to change

*approximately \$20.00 per year for books

— tuition for first year: \$130.00

— tuition for second year: \$120.00

— tuition for final year: \$90.00

*subject to change

Content:

Dental Assisting Arts; Oral Anatomy; Pathology and Histology; Dental Instruments and
Equipment; Dental Materials; Dental Specialties; Dental Psychology; Basic Anatomy and
Physiology; Bacteriology; Practice Management; Nutrition; Dental Health Education; Oral
Physiotherapy; Effective Communications; Therapeutics; Radiography.

Upon Completion:

— NAIT Dental Assisting Certificate
— NAIT Dental Assisting Pin
— NAIT Cap Band (green)

— CDNAA Dental Assisting Certificate
— CDNAA Dental Assisting Pin
— CDNAA Cap Band

Graduates of both courses are eligible for CDNAA Certification upon application without examination.

CDA EXECUTIVE DIRECTOR APPOINTED TO WHO COMMITTEE

William G. McIntosh, executive director of the Canadian Dental Association, was recently appointed by the Director-General of the World Health Organization to serve as a member of the WHO Expert Advisory Panel on Dental Health. His first assignment was

to participate as a member of an Expert Committee on Planning and Evaluation of Public Dental Health Services convened in Geneva, November 10-14, 1975.

The purpose of this committee was to develop a WHO report on the principles

and methodologies for planning and evaluating community dental health services. Typical of WHO policy, emphasis was to be placed on strategies particularly applicable to the developing countries.

Other members of the committee included: Dr. Mario M. Chaves, representative of the W.K. Kellogg Foundation for Latin America, Brazil, who acted as chairman; Dr. John C. Greene, Chief Dental Officer, United States Public Health Service, Department of Health, Education and Welfare; Dr. L. Hanachowicz, Dental Adviser to France's Minister of Health; Dr. G. Rizali Noor, Director, Dental Health Services, Department of Health, Indonesia; Professor A. I. Rybakov, Director of the Central Research Institute of Stomatology, Ministry of Health, U.S.S.R.; Professor Geoffrey L. Slack, London Hospital Medical College Dental School, U.K.

The Secretariat was comprised of: Dr. Per Baerum, Director of the Division of Dental Health, Health Services of Norway; Dr. David E. Barmes, Chief of Dental Health, World Health Organization; Dr. Vladimir Begroukov, Dental Health Officer for WHO; Dr. Lois K. Cohen, Division of Dentistry, U.S. Public Health Services; Dr. J. Kostlan, Regional Adviser in Dental Health, WHO office for Europe in Copenhagen; Dr. Richard Mumma, WHO Dental Health Consultant; Dr. Vladimir F. Rudko, Moscow Medical Stomatological Institute; and Dr. F. D. Schofield, Chief of Health Planning for WHO.

Dr. Louis J. Baume, vice president of the Fédération Dentaire Internationale and president of the University of Geneva's Institute of Dental Medicine, participated as the FDI representative.

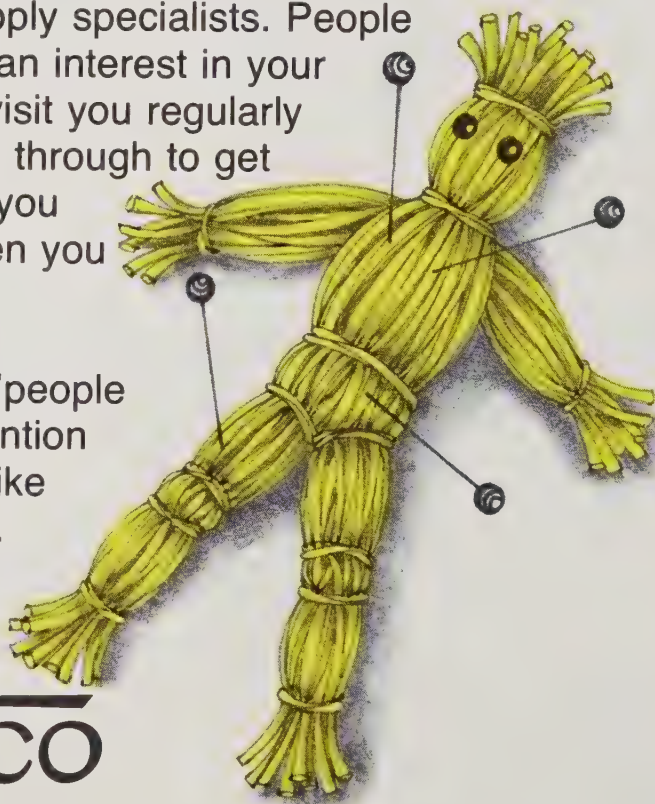
Following approval by the WHO General Assembly, the report developed by the Committee will be translated, distributed to all member countries and made available as a World Health Organization Technical Report.

Lost art?

Ever wonder what you have to do to get a little attention from your dental supplier. Could be that business is so good that he doesn't need you . . . then again, maybe he's forgotten the importance of customer "service".

Get the point, Doctor. You're better off dealing with a full line supplier like Denco, who field a team of knowledgeable dental supply specialists. People who take an interest in your practice, visit you regularly and follow through to get you what you need, when you want it.

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to get attention
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our action.



DENCO

Manitoba dentists elect Ralph Crawford president

P. Ralph Crawford was elected president of the Manitoba Dental Association during the MDA's 91st annual meeting held in January in Winnipeg.

Dr. Crawford received his Bachelor of Arts degree from the University of Ottawa before enrolling in dentistry at the University of Manitoba. He is the first graduate of the University of Manitoba's Faculty of Dentistry to serve as president of the Association.

A past president of the Winnipeg Dental Society, Dr. Crawford served on several MDA committees before being elected to the Board of Directors four years ago.

Other members elected to the board for the 1976 term are: Vern Rosnoski of Russell, Manitoba; Gary Nowazek of Brandon; Ted Derrett, Ben Goldberg, Martin Neville and Walker Shortill, all of Winnipeg; Gil Roach, lay member, and Iris Gold, auxiliary representative.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on January 31, 1976:

Guaranteed Fund: \$12.313;
Fixed Income Fund \$16.433;
Common Stock Fund \$28.138.

Total assets (market value) of the plan were \$22,158,352.30.

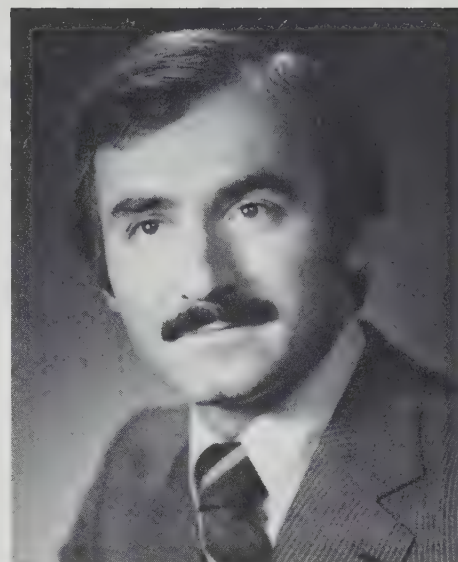
The following portfolio purchased and sales occurred during the preceding month: bought, \$200,000 British Columbia Telephone Co. interest bearing note, \$200,000 International Nickel Co. note, \$100,000 Mercantile Bank note, \$100,000 Simpson-Sears Acceptance note. Sold, 20,000 shares Celanese Canada Ltd., \$100,000 Aluminum Co. of Canada note, \$100,000 International Nickel Co. note, \$200,000 West Coast Transmissions note, \$100,000 Imperial Oil note.

For further information write to: CDA-sponsored Pension and Insurance Plans, 14 Madison Ave., Toronto, Ont. M5R 2S1.

ONTARIO ANNOUNCES FORMATION OF SOCIETY OF ENDODONTISTS

Ontario's endodontists recently announced the formation of the Ontario Society of Endodontists, representing all the certified endodontic specialists in the province.

The association was formed in response to the recent recognition of endodontics as an official specialty within the province by the Royal College of Dental Surgeons. The founding president is Joel J. Edelson, a 1967 dental graduate of the University of Toronto. Dr. Edelson graduated from the postgraduate course in endodontology at Temple University, Philadelphia, in 1971. He is now in private practice in Toronto and lectures on endodontology at the University of Toronto's Faculty of Dentistry. Dr. Edelson is a member of both the Canadian and American Associations of Endodontists.



Joel J. Edelson

Other officers on the Society's executive board are: John Storms, president elect; Barry Korzen, secretary; and F. Bruce Burns, treasurer.

More news on page 123

ADVERTISERS' INDEX

Amalgamated Dental	IBC
Ash Temple Ltd.	145
Astra Chemicals Ltd.	OBC
Block Drug Co.	113, 121
L. D. Caulk Co. of Canada	134
Colgate-Palmolive Ltd.	102
Cooper Laboratories Ltd.	131
Denco	116
Dentsply International	100, 119, 128, 147
Eaton Laboratories	IFC
Charles E. Frosst & Co.	138
Johnson & Johnson	107
Lever Detergent	110-111
Lawson McKay Tours Ltd.	148
The C. V. Mosby Co.	133
Procter & Gamble	99
Warner-Lambert Canada Ltd.	125
Weil Dental Supplies Ltd.	143
Whaledent International	105
S. S. White Co.	109

Advertisers in the Journal of the Canadian Dental Association are accepted on the basis of the Association's Standards on Advertising. Product claims are based on adequate evidence acceptable to the Association and are in keeping with highest professional ethics.

L'ASSOCIATION DES CHIRURGIENS-DENTISTES DU QUEBEC CHANGE DE TACTIQUE DE BOYCOTTAGE DU REGIME

L'Association des Chirurgiens-dentistes du Québec a changé la tactique de boycottage auquel il continue à soumettre le régime gratuit d'assistance du gouvernement. Au cours d'une assemblée qui a eu lieu le 31 janvier, l'ACDQ a rédigé un télégramme devant être transmis au ministre provincial de la santé, lui annonçant que les dentistes du Québec n'accepteraient plus de patients au bien-être sur la seule base de "soins d'urgence", mais qu'ils les traiteraient comme tous les autres patients. Cela signifie qu'ils ont l'intention d'exiger leurs honoraires directement du patient pour tout traitement reçu. C'est au patient que reviendra alors la responsabilité de se faire rembourser par la régie d'assurance-maladie du Québec.

Les principales objections portées par l'Association au régime concernent deux domaines clés: la structure de rémunération imposée par le gouvernement et les limitations imposées aux

traitements autorisés pour les bénéficiaires du bien-être. La structure de rémunération du programme est inférieure de 53% à l'échelle recommandée aux termes du barème établi par l'Association pour les praticiens privés. Selon l'ACDQ, les honoraires "couvrent à peine les frais d'exploitation".

L'Association révèle également qu'aux termes du régime, les bénéficiaires du bien-être sont traités en citoyens de seconde classe et ne sont autorisés à recevoir qu'une certaine catégorie de soins. Le Dr Claude Chicoine, président de l'ACDQ déclare que les patients au bien-être "n'ont droit qu'à un examen partiel par an, ne reçoivent aucun traitement préventif et leurs dents ne sont nettoyées qu'une fois par an. Si un deuxième nettoyage est nécessaire, l'autorisation doit venir de la régie d'assurance-maladie du Québec et non du dentiste traitant."

Le Dr Chicoine estime également

que le régime décourage la dentisterie préventive et encourage l'extraction des dents. Il a expliqué que le régime autorise un dentiste à drainer gratuitement un abcès tout en ne l'autorisant pas à effectuer de traitement du canal radiculaire pour sauver la dent d'un patient inscrit au bien-être.

Pour résumer les objections portées par l'Association au régime du gouvernement, le Dr Chicoine a déclaré: "nous désirons obtenir un régime dentaire plus complet pour les bénéficiaires du bien-être de la province; un régime qui comprend un plus grand nombre de traitements. Nous demandons une structure de rémunération négociée avec les dentistes de la province et non une structure imposée par le gouvernement. Nous désirons surtout que le gouvernement respecte notre profession. Nous n'accepterons pas qu'on nous impose arbitrairement des conditions de travail".

Groupe d'études des couronnes et bridges institue un fonds de fiducie au FCED

Le Crown and Bridge Study Club de l'Academy of Dentistry de Toronto vient de créer un fonds de fiducie auprès du FCED. Les revenus qui proviennent de ce fonds seront utilisés à perpétuité par le FCED.

La somme initiale de cinq mille dollars a été officiellement présentée le 21 janvier par Arthur J. Breglia, président

du Crown and Bridge Study Club, et Noble Hori, ancien président du Club, aux membres du bureau du FCED, au siège du Collège royal des chirurgiens-dentistes à Toronto. Le Club envisage de contribuer davantage à ce fonds de fiducie à mesure que des sommes supplémentaires seront disponibles.

A la suite de la présentation, le Dr Hori a félicité les personnes chargées de la gestion du FCED pour l'excellent travail qu'elles fournissaient en vue de la formation d'enseignants qualifiés dans le domaine dentaire, rehaussant ainsi la compétence des dentistes obtenant leurs diplômes au Canada.

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L'ACIAD INAUGURE UN PROGRAMME INDEPENDANT D'ETUDES POUR LES ASSISTANTES DENTAIRES

L'Association canadienne des infirmières et assistantes dentaires offre maintenant à toutes les assistantes dentaires du Canada l'occasion d'acquérir des connaissances de base dans leur profession grâce à un programme indépendant d'études régi par le Conseil d'accréditation de l'ACIAD.

Le programme, conçu par l'ACIAD, offre deux options, toutes deux accréditées par l'Association dentaire canadienne. La première se rapporte au programme d'assistance dentaire actuellement offert par le Northern Alberta Institute of Technology. Il s'agit surtout de cours par correspondance, mais les étudiants sont tenus de passer

une semaine entière par an à l'Institut à Edmonton.

La deuxième option se rapporte au programme de l'ACIAD envisagé pour septembre 1976. Ce programme de base destiné aux assistantes dentaires suivra le même curriculum que celui du Northern Alberta Institute, mais éliminera la semaine d'évaluation pratique à Edmonton.

L'exécutif de l'ACIAD aura à sa disposition les ressources nécessaires pour offrir ce programme en français aussi bien qu'en anglais.

Un grand nombre d'assistantes dentaires au Canada n'ont pas l'occasion d'obtenir une formation universitaire

dans leur domaine; par ailleurs, on reconnaît depuis longtemps qu'une assistante ayant reçu une formation apporte une aide bien plus efficace à son employeur. L'ACIAD recommande donc à tous les dentistes dont les assistantes n'ont pas reçu de formation d'encourager celles-ci à participer à ce programme.

Pour obtenir des renseignements à ce sujet, prière d'écrire à: Association canadienne des infirmières et assistantes dentaires, 904 Helmoken Drive, Vancouver, B.C. V6B 1B3.

*Par Elizabeth Purchase
Ancienne présidente, ACIAD*

Nouveau standard de nutrition du Canada

Monsieur Marc Lalonde, ministre de la Santé nationale et du Bien-être social vient de rendre public un nouveau Standard de nutrition du Canada, en remplacement de celui de 1964.

Le Standard de nutrition du Canada se base sur des données scientifiques pour définir les quantités quotidiennes d'énergie et de nutriments essentiels considérés suffisants pour faire face aux besoins de presque tous les Canadiens en bonne santé. Ces quantités recommandées dépassent les besoins minima de la majorité des individus, compte

tenu de la variation des besoins humains en nutriments spécifiques.

Le Standard révisé de 1975 préparé par le Comité comprend l'ingestion quotidienne d'énergie recommandée et de 27 nutriments, soit 12 de plus que le total recommandé par le standard de 1964. Cette augmentation du nombre de nutriments a été rendue possible par l'élargissement de connaissances concernant les fonctions réelles de ces nutriments dans l'organisme. Des changements ont également été apportés aux groupements âge-poids-sexe,

puisque'il a été reconnu que les besoins varient avec l'âge, le poids et l'état physiologique.

Le Standard de nutrition révisé sera utilisé par de nombreux groupes s'occupant de planification de régimes, d'établissement de standards, de ravitaillement, de mise au point de directives sur la fortification des nutriments ainsi qu'à titre de base pour la publicité. On peut se procurer ce document dans les librairies d'Information Canada, moyennant \$3.75.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 janvier 1976:

<i>Fonds avec garantie</i>	\$12.313;
<i>Fonds à revenu fixe</i>	\$16.433;
<i>Fonds d'actions ordinaires</i>	\$28.138.

L'avoir total (valeur marchande) du ré-

gime se montait à \$22,158,362.30.

Au cours du mois précédent, les transactions ont été les suivantes: achat, \$200,000 British Columbia Telephone Co. interest bearing note, \$200,000 International Nickel Co. note, \$100,000 Mercantile Bank note, \$100,000 Simpson-Sears Acceptance note. Vente, 20,000 shares Celanese

Canada Ltd., \$100,000 Aluminum Co. of Canada note, \$100,000 International Nickel Co. note, \$200,000 West Coast Transmissions note, \$100,000 Imperial Oil note.

Pour de plus amples renseignements, veuillez écrire à CDA-sponsored Pension and Insurance Plans, 14 Madison Ave., Toronto, Ont. M5R 2S1.

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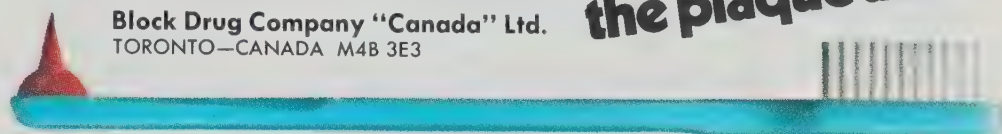
.007" bristles bend and flex during use even under hand pressure and are not likely to traumatize sensitive gingiva.

And the Softex .007" bristle tips are double rounded, polished smooth in all directions to better protect dentin and cementum and permit free margin cleaning.

This better cleaning bristle belongs to Softex. And there are over 2,200 of them on every Softex toothbrush—more bristles on a smaller brush head for improved cleaning power.

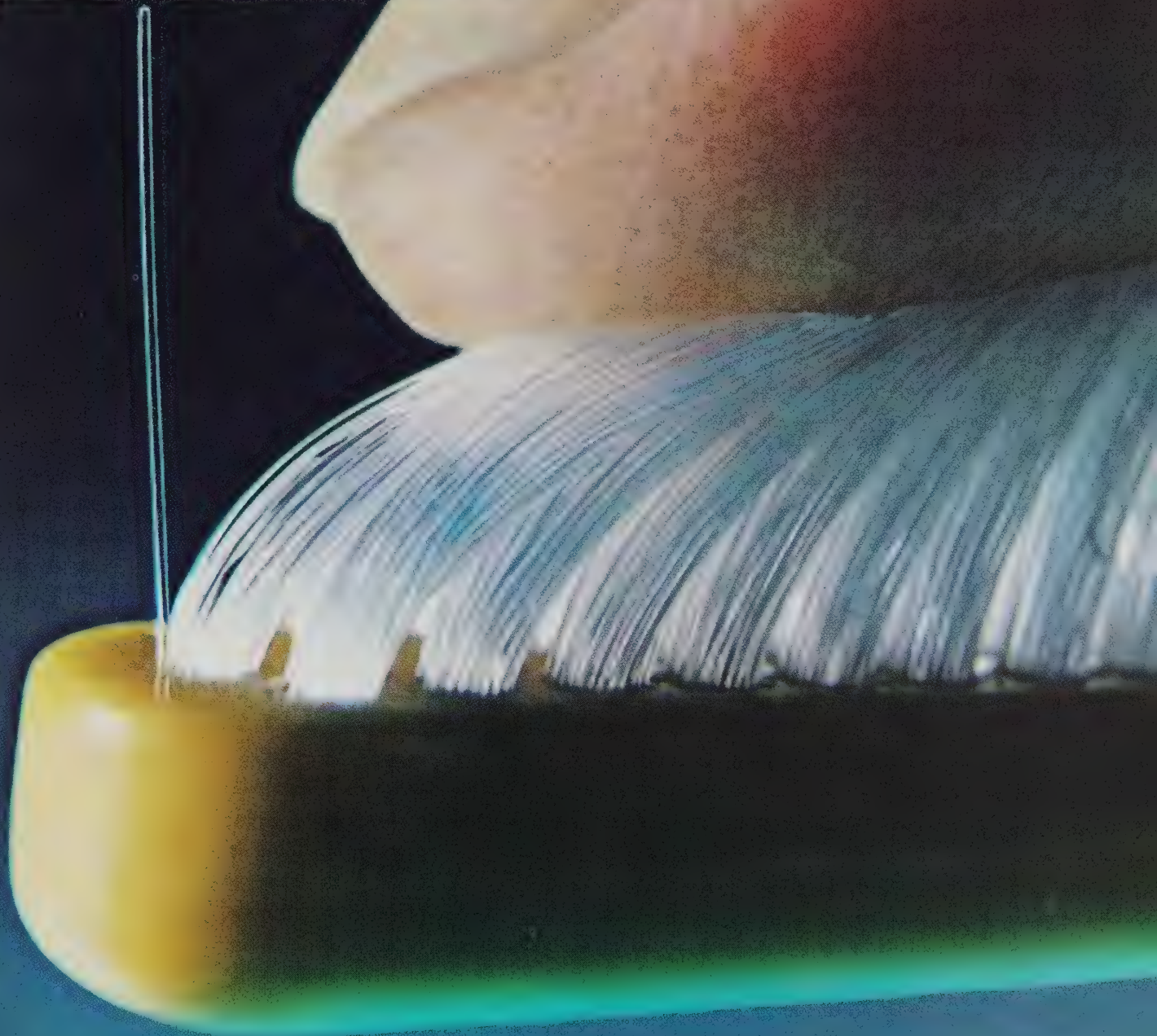
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prevention**



UNIFORM CODING SYSTEM AND STANDARD CLAIM FORM

R. G. Dickson
Chairman, Council on Health Care

The recently approved Canadian Dental Association Uniform System of Coding and List of Services, along with the Standard Claim Form, have already received wide approval by provincial dental associations and insuring agencies.

The purpose of the Code is to identify and categorize dental services and procedures in a uniform manner. Such a system facilitates the collection of useful statistical data, a more cohesive approach to establishing provincial dental fee guides and filing and processing claims from dental insurance programs.

Development phase

In 1971, the CDA Dental Services Council appointed R. G. Dickson as chairman of a committee to recommend a uniform system of coding of dental procedures as well as to review and suggest possible additions or changes to the current CDA List of Dental Services.

During the search for a uniform code and list of services for Canada, it was revealed that one province used no code, one province used a three-digit system, two provinces used a four-digit system and four provinces used a five-digit system adopted from the American Dental Association Code on Dental Procedures and Nomenclature. Some of the provincial fee guides followed the Canadian Dental Association list of services, some the American Dental Association and

some a variation. Of those provinces using the American Dental Association five-digit coding system, some had used code numbers that were different from the ADA for the same service. It was obvious that there was uniformity in neither the List of Dental Services nor the coding of these services across the nation.

In an attempt to recommend a uniform system of coding and list of services, it seemed reasonable that it should, if possible, be compatible with that of the American Dental Association because: (1) at least five corporate members had already expressed such a desire, (2) there was a continuing increase in the numbers of individuals covered by dental insurance programs and (3) an increasing mobility of people within Canada and across the U.S. border indicated such a need.

In order to keep pace with this need, the Code on Dental Procedures and Nomenclature as published by the Council on Dental Care Programs of the American Dental Association was adopted as the basis for a complete listing and coding of services by the Canadian Dental Association.

It was recognized, however, that:

1. The ADA list was not a complete list of dental services.
2. Any additions to this list by CDA would automatically produce areas which would not be identical with the ADA list.
3. The broader classification of services would be sufficient to facilitate inter-

national administrative compatibility.

4. There were many sub-classifications which would rerequire refinement by provincial associations.

5. To adopt the ADA Code would be to adopt, in effect, a four-digit code because the first digit had no significance in Canada. (The first number of the ADA Code is "0", identifying that procedure as being a dental service as opposed to a medical, hospital or other service.)

6. The utilization of a five-digit code would permit easy identification with the ADA Code in all of the general categories of services as well as in most of the classifications of service and it provided considerable flexibility.

In the development of the CDA Uniform Code and List of Services, all of the provincial lists of services were incorporated into the second working draft. All of the specialty sections of CDA were then invited to participate in the revision of the appropriate categories of service in this and subsequent drafts.

During the seven printed revisions, there was a tremendous amount of co-operation and input from all of the provincial associations, specialty sections and interested individual dentists.

The final revision was approved by the Board of CDA in 1973 and was completed only after a meeting of all the provincial Economics Committee chairmen. These chairmen met to make revisions which would facilitate

the use of the CDA Code and List of Services in provincial fee guides.

The meeting, under the aegis of the CDA Council on Health Care and chaired by J. W. MacKay, Dental Services Committee, was a commendable example of co-operation and compromise. As a result of this meeting, P. J. Kirby and especially R. M. Kellen worked diligently to produce the final revision that was acceptable for utilization in provincial fee guides.

The Code and its uses

The CDA Code is a five-digit system. The first digit designates the category of dental service. The second indicates the classification of service within the category. The third digit designates the sub-classification while the fourth and fifth digits identify the specific service or procedure.

e.g. 27312

- | | |
|----|--|
| 2 | Restorative service |
| 7 | Crowns |
| 3 | Gold |
| 12 | Veneer with direct resin or silicate cement corner |

Concomitant with the development of the CDA Uniform Code and List of Services, D. L. Rife and later, R. M. Kellen, as Chairman of an ad hoc CDA/Canadian Health Insurance Association Liaison committee, was charged with the responsibility for developing a standard claim form. Dr. Rife's committee, in conjunction with the Canadian Association of Accident and Sickness Insurers, spent many hours revising and refining a claim form and a card for computer use.

The purpose of these forms is to minimize the amount of desk work required by the dentist and his staff in filing dental claims and to provide all of the essential information required by the third party agency.

In addition to the CDA Standard Claim Form, there are instructions for accurately filing the claim and recommendations for dealing effectively with patients covered by dental insurance.

Both Ontario and Saskatchewan have already published "Guides to Dental Claim Forms" for their members and Alberta is in the process of preparing one.

The CDA Uniform Code and List of Services and the CDA Standard Claim

Form are designed to work together for the best result. It is essential that they be reproduced by those using them exactly as they are published, in order to preserve the integrity of uniformity. Any changes or additions must be submitted to the Council on Health Care for approval and implementation.

The claim form has been approved by the following eight provincial dental associations: British Columbia, Alberta, Saskatchewan, Ontario, New Brunswick, Prince Edward Island, Nova Scotia and Newfoundland. The Department of Veterans Affairs also approves.

The Uniform Code and List of Services has been approved by the following seven provincial dental associations: Alberta, Saskatchewan, Ontario, New Brunswick, Prince Edward Island, Nova Scotia and Newfoundland.

Ontario was the first province to incorporate the total system. Others are preparing to follow. Total acceptance will do much to reduce the volume of paperwork and time required in the filing of dental insurance claims by the individual dentist.

NEW DIETARY STANDARD FOR CANADA NOW AVAILABLE

National Health and Welfare Minister Marc Lalonde recently made public a new Dietary Standard for Canada replacing the one published in 1964.

The Dietary Standard for Canada is a statement, based on scientific data, of the daily amounts of energy and essential nutrients considered adequate to meet the needs of practically all healthy Canadians. These recommended quantities exceed the minimum requirements for most individuals because they must take into account variation in human needs for specific nutrients.

The last complete revision of the Dietary Standard for Canada was published in 1964. Since then, a considerable amount of new information on nutrient requirements has been developed by nutritional experts. In re-

sponse to the need to revise the Standard, an expert Committee was established in 1973 by the Health Protection Branch of the Department of National Health and Welfare.

The revised 1975 standard prepared by the Committee contains recommended daily intakes of energy and of 27 nutrients, an increase of 12 over the total in the 1964 standard. This increase in the number of nutrients was possible because of increased knowledge about the actual functions of these nutrients in the body. Changes have also been made in the age-weight-sex groupings since it was recognized that requirements vary with age, body size and physiological state.

The revised Dietary Standard will be used by many different groups con-

cerned with planning diets, setting standards, procuring food supplies, developing policies for nutrient fortification and as a basis for advertising. It is available from Information Canada bookstores for \$3.75.

Canadian orthodontists elect new executive

During the 1975 annual meeting of the Canadian Association of Orthodontists the following members were elected to executive offices: R. Mullen, Edmonton, president; R. Pileski, Hamilton, president-elect; R. Hicks, Vancouver, vice-president; and J. J. Schachter, Saskatoon, secretary-treasurer.

DEVELOPING INFANT OCCLUSION, RELATED FEEDING METHODS AND ORAL HABITS

Part I: Methodology and results at 4 and 8 months

W. J. Simpson, DDS, MSc

D. K. Cheung, DDS, MSc

Edmonton

Feeding methods and oral habits, including soother sucking, were studied in infants who were followed from birth to determine the character of the gum pad relationships at 4 months and 8 months. Oral habits exerted a definite influence and significantly increased the incidence of anterior open bite.

Les méthodes d'alimentation et les coutumes buccales, y compris la succion de la tétine ont été étudiées chez les bébés suivis depuis leur naissance afin de déterminer la nature de la crête gingivale à la suite de ces coutumes à l'âge de 4 et de 8 mois. Les coutumes buccales exercent une nette influence et augmentent de façon significative l'incidence de la béance antérieure.

This article reports the findings in a longitudinal study of infant occlusion. It is a continuation of work which was previously reported.¹ The investigations commenced in the nurseries of the University of Alberta Hospital and continued at the Faculty of Dentistry, University of Alberta. The initial report stated that a majority of infants were born with an overbite-overjet (46 per cent) or an overbite (44.67 per cent) anterior gum pad relationship, and we concluded that these relationships were natural conditions at birth (Table 1). Inspection of the occlusion of mothers showed a high correlation of the infants' occlusions to the mothers' occlusions (Table 2).

This second stage of the study involved the obtaining of record casts, bite registrations and photographs at age 4 months and 8 months, as follows:

(a) One hundred and thirteen infants (60 male and 53 female) of the original group of 150, at 4 months.

(b) Fifty-two infants (29 male and 23 female) of the original 150 infants after 8 months.

The methods for collecting information were similar to those described for infants at birth.¹

During this stage of the study, records were kept of feeding methods and oral habits such as thumb sucking or finger sucking and the use of soothers.

Eighty-seven mothers started breast feeding their babies at birth and 63 mothers bottle-fed their babies after delivery.

Nipples — Three different types of artificial nipples were used (Fig 1):

Type 1 was long and cylindrical ($\frac{7}{8}$ in long, $\frac{1}{2}$ in diameter) with a broad, circular base and made of very soft rubber.

Type 2 was tapered away from a small circular base with two stiff ridges on either side. The rubber was rigid and inflexible.

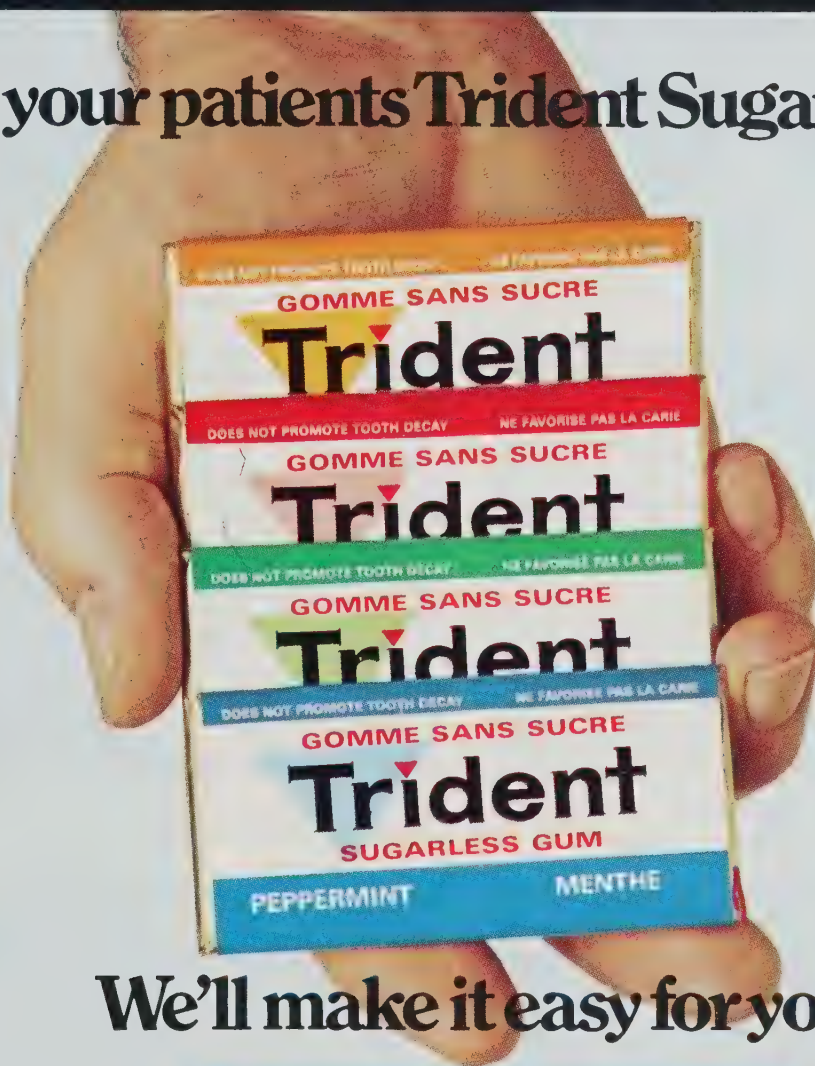
Type 3 was cylindrical with a small circular base. Somewhat constricted in the middle, it terminated in a ball-shaped tip. The rubber was harder than that of Type 1 but softer than that of Type 2 nipples.

Soothers — Three different soothers were used:

Type A had a circular tip joined to a narrow ovoid neck. The tip had a flat plane on one side and a convexity on the other side. The circular tip was set at approximately a 45

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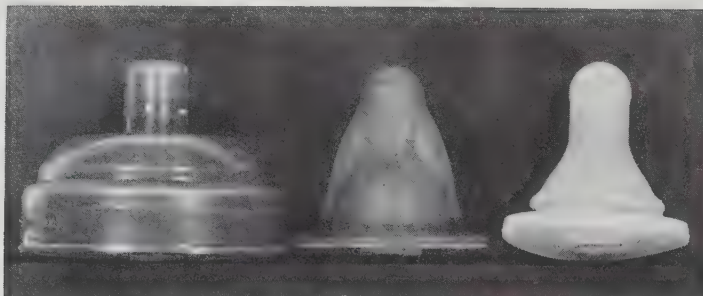


Fig 1 Lateral view of the three types of bottle nipple. L. to R.: Types 1, 2 and 3.



Fig 2 Lateral view of Type A soother.



Fig 3 Type B, lateral view. Left: soothers without a core. Centre and right: soothers with a core.

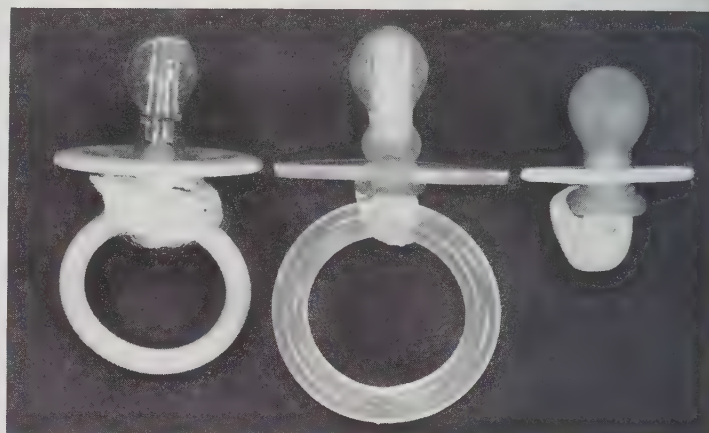


Fig 4 Type C, lateral view. Left: soother with a hard core. Centre: soother with a soft core. Right: soother without a core.

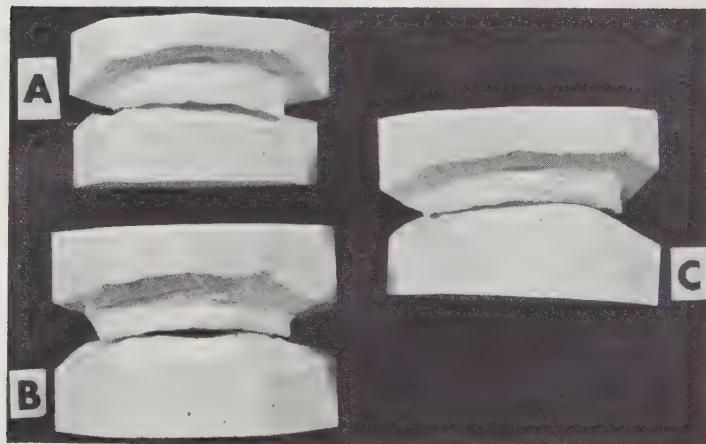


Fig 5 Serial record casts showing (A) overbite-overjet at birth, (B) open bite after 4 months, (C) overbite after 8 months.

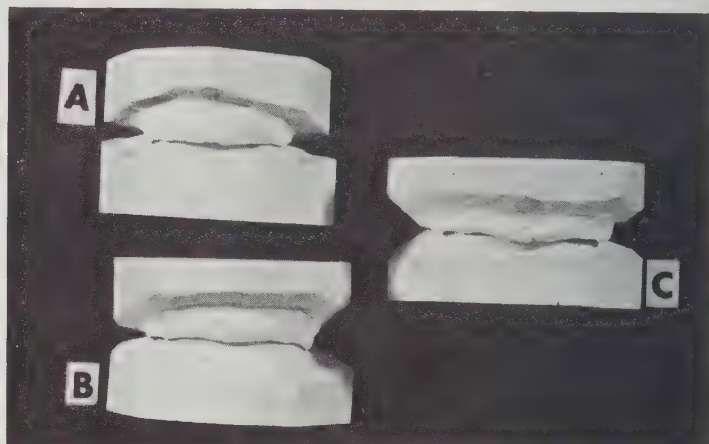


Fig 6 Serial record casts showing (A) overbite-overjet at birth, (B) overbite after 4 months, (C) overbite after 8 months.

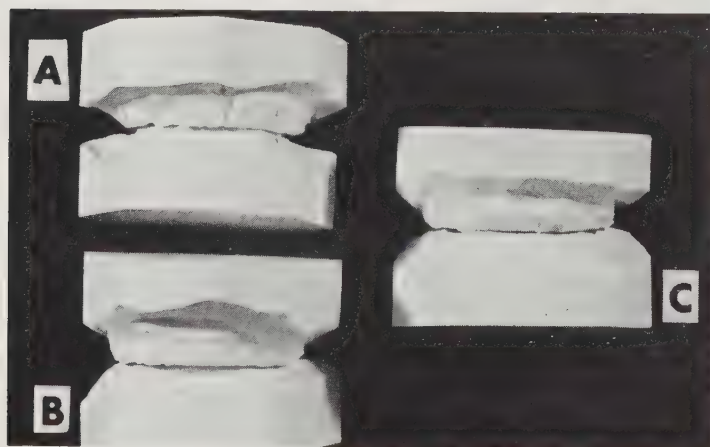


Fig 7 Serial record casts showing (A) overbite at birth, (B) overbite after 4 months, (C) end-to-end relation after 8 months.

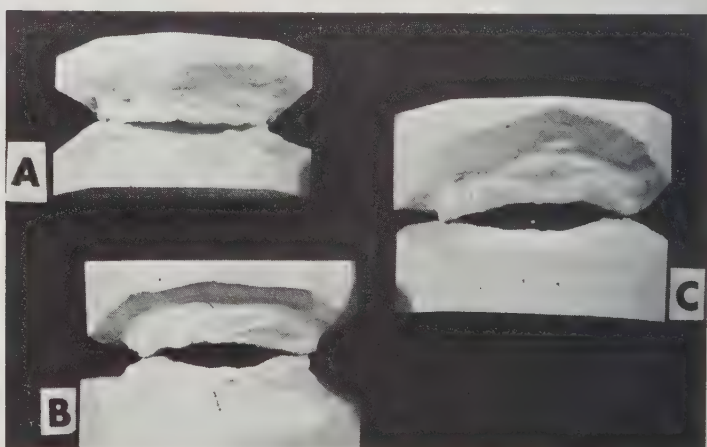


Fig 8 Serial record casts showing (A) overbite-overjet at birth, (B) open bite after 4 months, (C) open bite after 8 months. This baby was bottle-fed with a Type 2 nipple and used a Type B soother for the remainder of the day and night.

anterior gum pad relationship of 150 neonates shortly after birth (79 males and 71 females)

Table 1

anterior gum pad relationship	Incidence
Overbite-overjet	69 (46.00%)
Overbite	67 (44.67%)
Overjet	8 (5.33%)
End-to-end	4 (2.67%)
Open bite	2 (1.33%)
Total	150* (100%)

Of these 150 babies, 87 were breast-fed and 63 were bottle-fed after birth

Age of infants when change from breast feeding to bottle feeding occurred

Table 3

Birth to 1 month	1-2 months	2-3 months	3-4 months	> 4 months	Total
9 (7.65%)	25 (49.92%)	12 (23.53%)	5 (9.80%)	0 (0.00%)	51* (100%)

Eighty-seven mothers started breast feeding their babies after delivery. After four months 11 of the remaining 113 babies were still breast fed. Fifty-one had changed to the bottle.

degree angle to the neck. This "Biological Arch Former" as designed by Muller and Balters (Fig 2).

Type B had a small constriction in the middle, terminating in a rounded tip. They resembled the Type 3 nipple used in bottle feeding. This soother was made with or without a cylindrical core (Fig 3).

Type C was composed of two spherical segments with an intervening constriction. This soother was obtainable in three different forms (Fig 4): with a soft cylindrical core, with a hard cylindrical core, or without a core.

Changes from breast to bottle feeding — The number of mothers who continued breast feeding declined sharply as the study progressed. Only 11 of the original 87 mothers were still breast feeding after four months. Table 3 shows that 46 (91.10 per cent) of 51 mothers changed from breast feeding to total bottle feeding within the first two months after birth.

Findings at four months

Close examination of the data relating to anterior gum pad relationship of infants from birth to four months showed:

A significant decrease in the number of infants showing an overbite-overjet relationship (from 46.00 to 9.73 per cent).

Occlusion of mothers

Table 2

Molar relation (Angle classification)		Incisor relation	
Class I	46 (52.27%)	Overbite-overjet	54 (60.00%)
Class II	38 (43.18%)	Overbite	29 (32.22%)
Class III	4 (4.55%)	Overjet	0 (0.00%)
		End-to-end	5 (5.56%)
		Open bite	2 (2.22%)
Total	88* (100%)	Total	90† (100%)

* All mothers have natural dentitions

† This figure includes two mothers with posterior partial dentures.

A decrease in the number of infants exhibiting an overbite relationship (from 44.67 to 28.32 per cent).

An increase in the number of infants with an overjet relationship (from 5.33 to 8.85 per cent).

An increase in the number of infants with an end-to-end relationship (from 2.67 to 11.50 per cent).

A significant increase in the occurrence of an open bite relationship (from 1.33 to 41.59 per cent).

Excluding the four end-to-end relationships, the remaining 146 infants (97.33 per cent) showed a posterior and lingual relationship of the mandible to the maxilla (Table 1).

Influence of feeding methods — The following observations were noted:

Only 9.09 per cent of breast-fed and 8.62 per cent of bottle-fed babies had an overbite-overjet relationship.

Overbite relationship occurred in 36.36 per cent of breast-fed and 26.52 per cent of bottle-fed babies.

An overjet relationship was found in 9.09 per cent of breast-fed and 9.91 per cent of bottle-fed babies.

End-to-end relationship occurred in 18.18 per cent of breast-fed and 11.49 per cent of bottle-fed babies.

Open-bite relationship was found in 27.27 per cent of breast-fed babies and 43.76 per cent of bottle-fed babies.

Exclusive breast feeding did not appear to influence the development of an open-bite gum pad relationship in babies during the first four months of postnatal life.

Rubber nipples — Only nine babies were fed by breast and bottle within the four-month period. Seven of the nine babies were fed with the Type 2 nipple and the other two babies with the Type 1 nipple.

The incidence of open bite in the group of 102 bottle-fed babies was as follows after four months:

Eight (34.78 per cent) of 23 infants who used Type 1 nipples had anterior open bite.

Twenty-seven (43.55 per cent) of 62 infants who used Type 2 nipples had anterior open bite.

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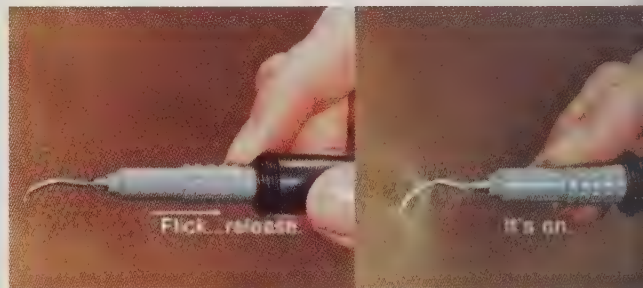
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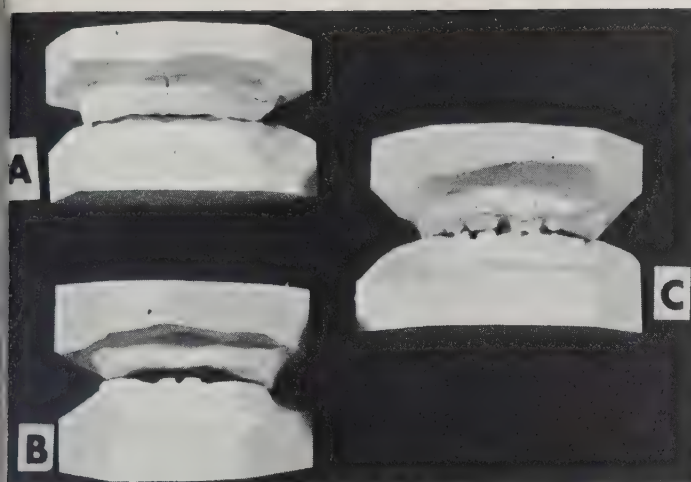


Fig 9 Serial record casts showing (A) overjet of gum pads at birth, (B) open bite of gum pads after 4 months, (C) overbite of primary incisors after 8 months.

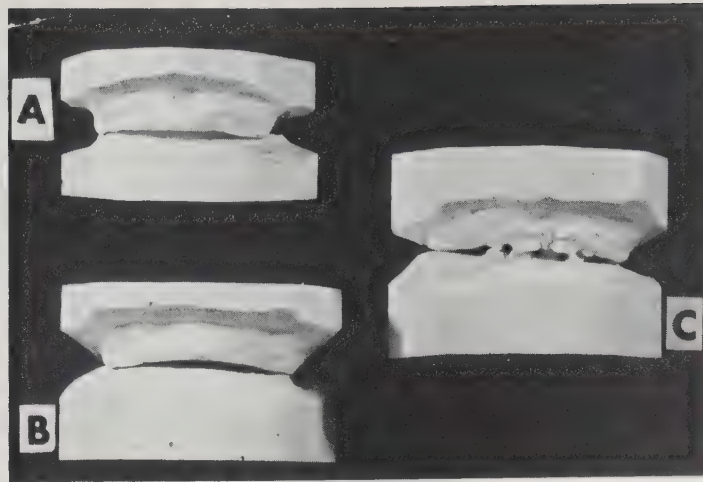


Fig 10 Serial record casts showing (A) overbite-overjet of gum pads at birth, (B) open bite of gum pads after 4 months, (C) primary incisor overbite after 8 months.

Association of different types of soother with the anterior gum pad relationship of infants after 4 months

Table 4

Anterior Gum pad relationship	Soothers						Total
	Type A	Type B		Type C			
		without core	with core	without core	with soft core	with hard core	
Overbite-overjet	1 (1.43%)	2 (2.86%)	1 (1.43%)		2 (2.86%)		6 (8.57%)
Overbite	1 (1.43%)	10 (14.29%)	4 (5.71%)		2 (2.86%)	1 (1.43%)	18 (25.71%)
Overjet	2 (2.86%)	1 (1.43%)		1 (1.43%)			4 (5.71%)
End-to-end	2 (2.86%)	3 (4.29%)	1 (1.43%)	1 (1.43%)	1 (1.43%)		8 (11.43%)
Open bite	2 (2.86%)	21 (30.00%)	2 (2.86%)	4 (5.71%)	3 (4.29%)	2 (2.86%)	34 (48.57%)
Total	8 (11.43%)	37 (52.86%)	8 (11.43%)	6 (8.57%)	8 (11.43%)	3 (4.29%)	70 (100%)

Nine (52.94 per cent) of 17 infants who used Type 3 nipples had anterior open bite.

During the first four months, Type 1 nipples, used alone, produced no apparent open bite, while bottle feeding, accompanied by oral habits (soother, thumb or finger sucking), led to a significant increase in the incidence of open bite.

Soothes sucking — After four months, 70 of 113 babies (61.95 per cent) were using soothers. According to the mothers, 57 (81.43 per cent) of the 70 soother sucking infants started the habit within the first four postnatal weeks. Sixty-seven (95.71 per cent) used the soother for less than 30 minutes at a time. The frequency of these sessions could not be determined.

Data reflecting the influence of the three different soothers on infantile gum pads are summarized in Table 4. Thirty-four (72.34 per cent) of 47 open bites were associated with soother sucking. Of these, one open bite was associated with breast feeding and the remaining 33 were found in bottle-fed babies.

Table 6 shows the following results with respect to open bites:

Two (2.86 per cent of total) open bites developed with the use of Type A soothers.

Twenty-three (32.86 per cent of total) open bites developed with the use of Type B soothers.

Nine (12.86 per cent of total) open bites developed with the use of Type C soothers.

Relation between anterior gum pad relationship and thumb/finger sucking at 4 months after birth

Table 5

Incidence of thumb and/or finger sucking	Anterior gum pad relationship					Sub-total
	Overbite-overjet	Overbite	Overjet	End-to-end	Open-bite	
Breast-fed babies	1 (1.67%)	2 (3.33%)		1 (1.67%)	3 (5.00%)	7 (11.67%)
Bottle-fed babies						
Type 1 Nipple	1 (1.67%)	5 (8.23%)		1 (1.67%)	5 (8.23%)	12 (20.00%)
Type 2 Nipple	5 (8.23%)	10 (16.67%)	2 (3.33%)	3 (5.00%)	10 (16.67%)	30 (50.00%)
Type 3 Nipple	1 (1.67%)	3 (5.00%)		2 (3.33%)	5 (8.23%)	11 (18.33%)
Total	8 (13.33%)	20 (33.33%)	2 (3.33%)	7 (11.67%)	23 (38.33%)	60 (100%)

Anterior gum pad relationships of infants shortly after birth and after 4 months

Table 6

Anterior gum pad relationship at birth	Anterior gum pad relationship at 4 months					Total
	Overbite-overjet	Overbite	Overjet	End-to-end	Open-bite	
Overbite-overjet	10 (8.85%)	20 (17.20%)	2 (1.77%)	4 (3.44%)	19 (16.81%)	55 (48.67%)
Overbite	1 (0.88%)	11 (9.73%)	7 (6.19%)	7 (6.19%)	21 (18.58%)	47 (41.59%)
Overjet		1 (0.88%)		1 (0.88%)	4 (3.44%)	6 (5.31%)
End-to-end			1 (0.88%)	1 (0.88%)	1 (0.88%)	3 (2.65%)
Open bite					2 (1.77%)	2 (1.77%)
Total	11 (9.73%)	32 (28.32%)	10 (8.85%)	13 (11.50%)	47 (41.59%)	113 (100%)

Furthermore, bottle feeding and soother sucking together accounted for 21 (44.7 per cent) of the 47 open bites.

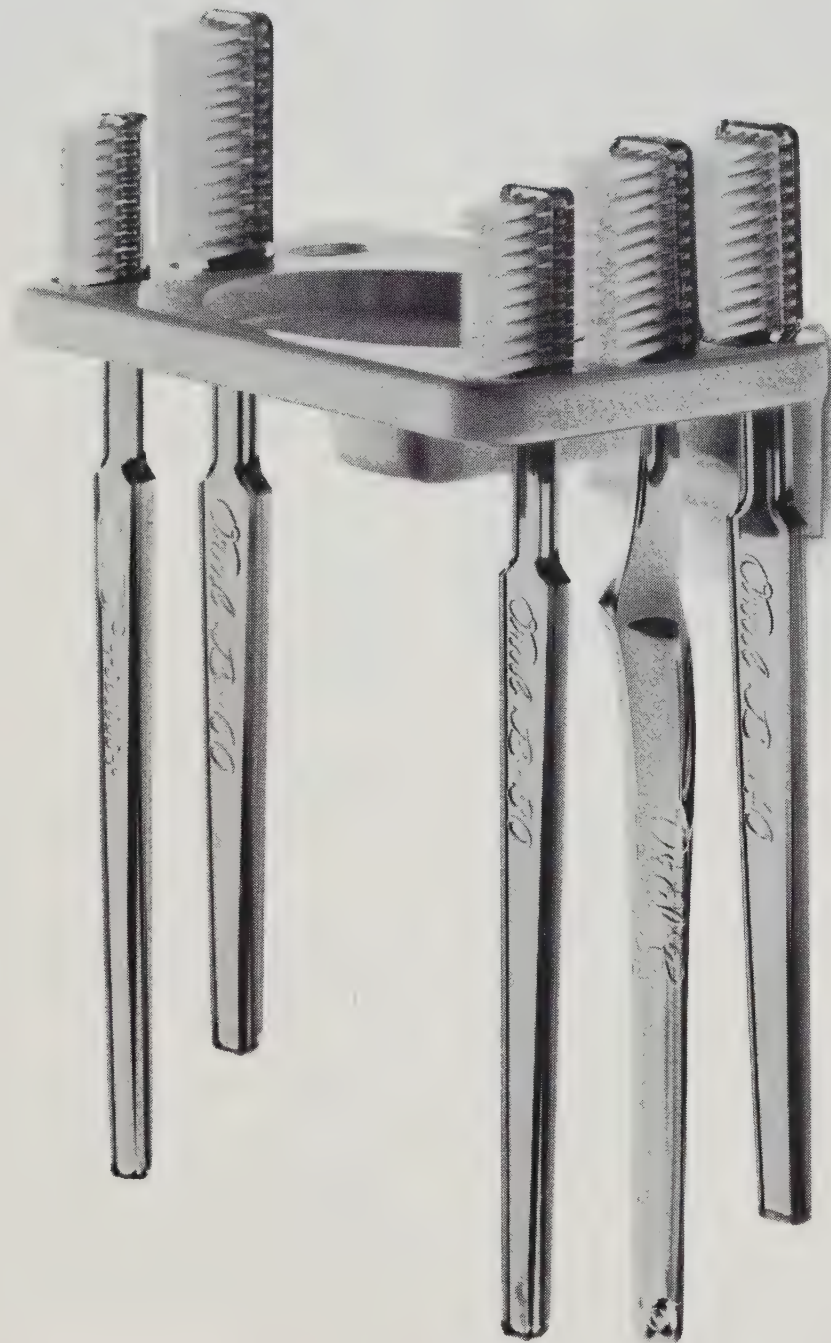
Thumb and finger sucking — In the group of 47 open bites, 23 (48.94 per cent) babies were thumb and finger suckers. At the end of four months, 43 (38.05 per cent) of 113 babies had an overbite-overjet relationship (11) or an overbite (32) relationship. Sixty of these babies were thumb or finger suckers (Table 5).

Anterior gum pad relationship at birth and at four months — The following observations can be made from Table 6:

The overbite-overjet relationship tended to develop into an overbite (17.70 per cent) or an open bite (16.81 per cent) and ten overbite-overjet relationships (8.85 per cent) remained after four months.

The overbite relationship developed into open bites in 21 instances (18.58 per cent), but 11 overbites (9.73 per cent) remained the same at the end of four months.

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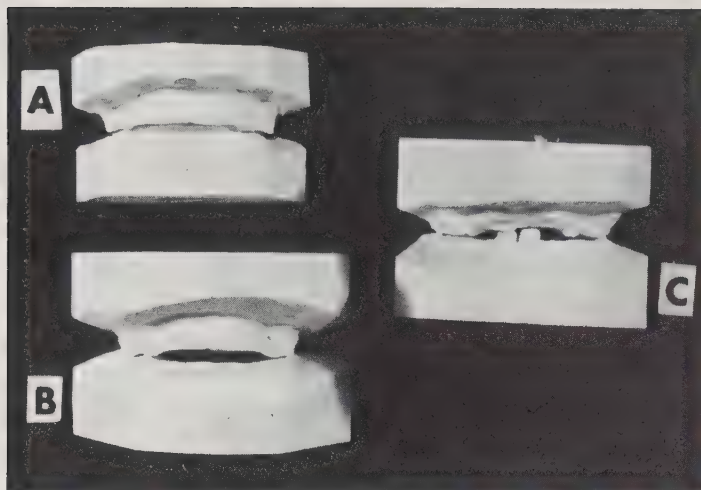


Fig 11 Serial record casts showing (A) overbite of gum pads at birth, (B) open bite of gum pads after 4 months, (C) primary incisor overbite after 8 months.

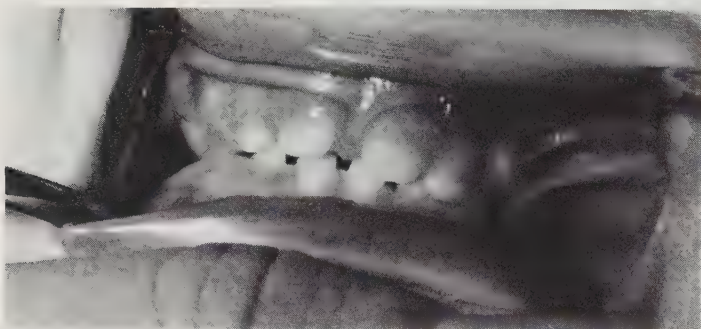


Fig 13 Intra-oral view of primary incisor overbite in an 8 month old baby.

The six overjet relationships changed into four open bites (3.44 per cent), one overbite (0.88 per cent) and one end-to-end bite (0.88 per cent) at the end of four months.

Of the three end-to-end relationships, one (0.88 per cent) developed into an overjet, one (0.88 per cent) changed into open bite, and one (0.88 per cent) remained unchanged after four months.

The two open bites (1.77 per cent) underwent no change from birth to four months.

A total of 42 infants retained an overbite-overjet or an overbite relationship after 4 months.

Findings at eight months

Influence of feeding methods and oral habits — At eight months, the infantile gum pad relationships were examined in the light of different feeding methods (breast, bottle and cup) combined with oral habits. In determining overbite relationships, incisor overbite was recorded along with the overbite of the gum pads when the incisors were erupting.

Open bites decreased from 41.59 per cent at 4 months to 25.90 per cent at 8 months. This was due to eruption of the incisors into an overbite relationship in some of the babies who started with open bites. In addition, the babies (52) seen at 8 months were less than half the number (113) seen at the 4-month appointment. Consequently, some babies with open bites were lost from the study.

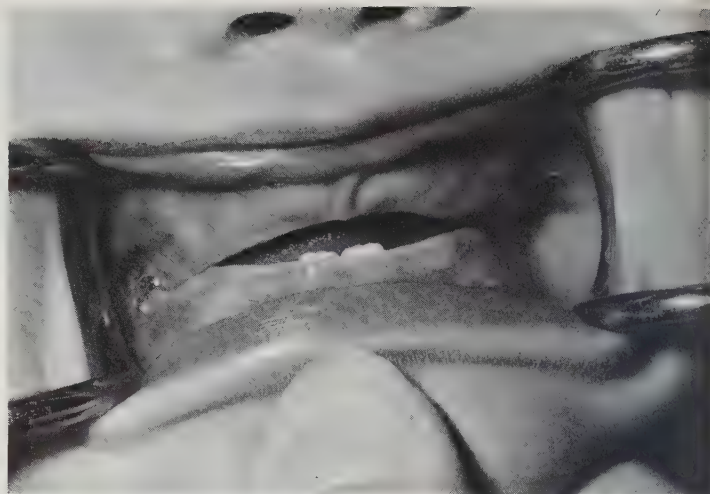


Fig 12 Intra-oral view of an open bite gum pad relationship with lower primary central incisors erupting in an 8 month old baby.

Relation between anterior gum pads of infants at 4 months and their primary incisor teeth at 8 months

Table 7

Gum pads at 4 months	Infants primary incisors at 8 months	Total infants
Overbite-overjet	Overbite	5 (21.74%)
Overbite	Overbite	10 (43.48%)
Overjet	Overbite	1 (4.35%)
End-to-end	Overbite	1 (4.35%)
Open bite	Overbite	6 (26.09%)
Total		23 (100%)

Forty-five of 52 babies were fed by cup in addition to being breast- or bottle-fed. Forty-four (97.78 per cent) of these babies started to use the cup between four and eight months after birth.

Relation between gum pads at four months and incisors at eight months — After 8 months, the incisors were erupting into occlusion in 23 of 52 babies (Table 7). All these teeth showed an overbite relationship regardless of the former gum pad relationships (Fig 5-13).

There was no significant correlation of feeding methods and the occurrence of oral habits in infants.

Summary

Feeding methods and oral habits, including soother sucking, were studied in infants who were followed from birth to determine the character of the gum pad relationships at 4 months and 8 months. The incidence of various abnormal gum pad relationships was recorded.

1 Simpson, W. J. and Cheung, D. K. Gum pad relationships of infants at birth. *J Canad Dent Ass* 39:182, 1973.



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DEVELOPING INFANT OCCLUSION, RELATED FEEDING METHODS AND ORAL HABITS

Part II: Discussion and conclusions

W. J. Simpson, DDS, MSc
D. K. Cheung, DDS, MSc
Edmonton

Discussion

The trend depicting declining overbite-overjet and overjet relationships and increasing end-to-end relationships reflects either forward growth or forward positioning of the mandible in relation to the maxilla. These findings agree with those of Clinch,¹ Sillman,² Keith and Campion,³ Frush,⁴ Friel and McKeag,⁵ and Hellman.^{6,7} Levihn,⁸ in his cephalometric study of the foetus, observed an approximately equal rate of anterior growth in the maxilla and the mandible relative to the cranial base. However, Riedel,⁹ in his cephalometric analysis of skeletal and dental patterns in ideal occlusion, found that the mandible and maxilla became more prognathic with increasing age, with the mandible showing the greatest forward positioning in relation to the cranial base. Further cephalometric study to determine the growth pattern of the maxilla and the mandible in relation to the cranial base is warranted. The use of metallic implants and radioactive dyes or isotopes in the maxilla and mandible of experimental animals, followed by cephalometric study over a definite period after birth would reveal valuable information on this aspect of growth and development. A longitudinal cephalometric study of newborn infants from birth to 5 to 10 years would probably yield the same information; this approach is impractical, however, and the radiation hazard difficult to justify.

Although mothers with overbite-overjet or overbite alone tended to have babies with similar gum pad relationships, the influence of the fathers must not be overlooked. In a future study, a correlation between gum pad relations of newborn infants and occlusions of both parents would further verify this finding.

The beneficial aspects of breast feeding on the mental and physical health of the infant should not be underrated despite the few breast-fed babies in this study. Unfortunately, the many mothers who changed from breast to bottle feeding are indicative of a lack of interest in breast feeding. Definite conclusions concerning the relationship between breast feeding and the gum pad occlusion would therefore require a group of mothers who persist with breast feeding for a sufficient length of time.

The small number of infants in the present study precludes postulation of any correlation between bottle feeding and the anterior gum pad relationships. Further investigation in this field is warranted.

Oral habits (soother, thumb and finger sucking) had a definite influence on the infantile gum pads, however. This is apparent in the significant increase in open bites after four months in bottle-fed babies.

Bowden,¹⁰ in his thesis on digital and dummy (soother) sucking said: "A fundamental concept of biological investigation is to realize that a multitude of aetiological factors is often involved. The only allowable assumption is that numerous factors may have been combined in the causation of a particular clinical sign, e.g. overbite. As far as possible, allowance should be made for the known variables. . . ."

Our small number of infants makes it very difficult to isolate which oral habits contribute to the change of the gum pad relationships. Evidently, a combination of these habits caused a change in the gum pad relationships of infants over

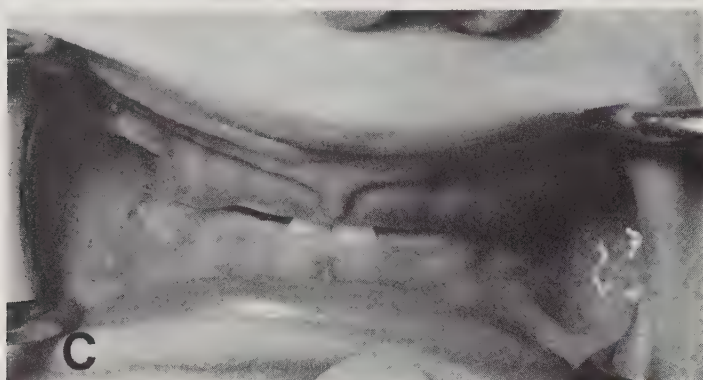
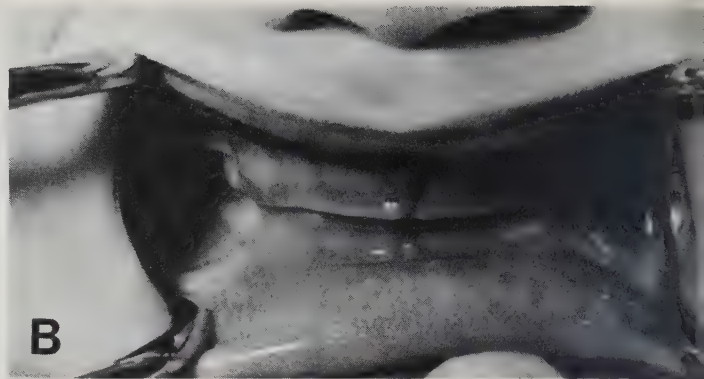
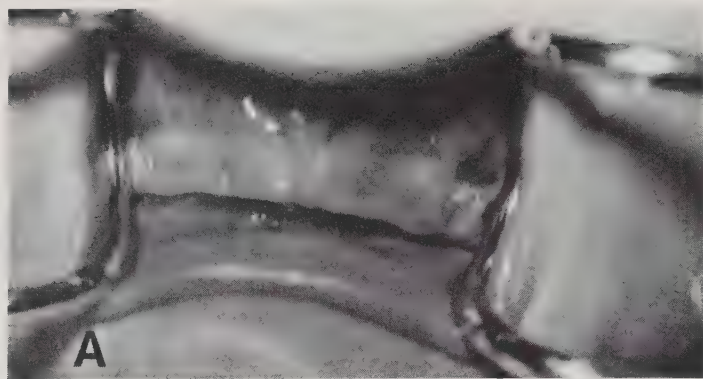


Fig 1 Serial photographs of the occlusion of a child who was breast-fed and used a Type A soother. A, 6 days old. B, 4 months old. C, 8 months old. D, 35 months old.



Fig 2 Primary incisor open bite in a 36 month old child who was bottle-fed and used a Type B soother.



Fig 3 Primary incisor overbite in a 37 month old child who was breast-fed and used a Type A soother.

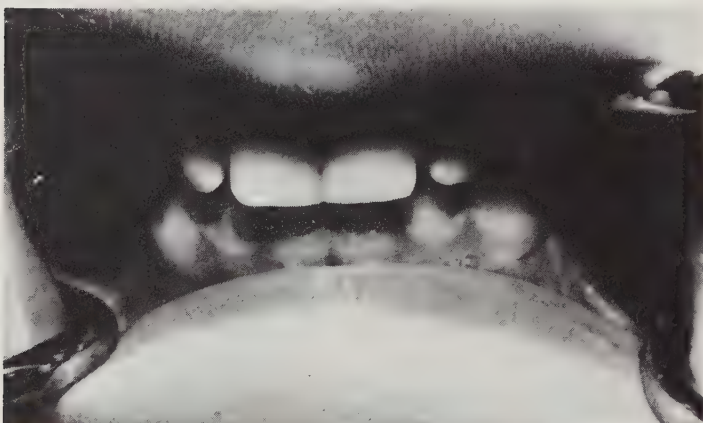


Fig 4 Primary incisor overbite in a 34 month old child who was bottle-fed and used a Type C soother with a hard core.



Fig 5 Primary incisor reverse overbite in a 35 month old child who was breast-fed, did not use a soother and had no sucking habits.

a period of four months. That change could be detected in infants with additional sucking habits apart from their routine feeding schedules. In other words, the gum pad relationships of infants without additional sucking differ from those of infants with extra oral habits.

Swinehart,^{11,12} Graber¹³ and Cook¹⁴ found that digital sucking generates tremendous pressure in the oral cavity. Apparently this pressure produced changes in the dental arches. Soother sucking creates similar pressure. This pressure is detrimental to the developing dental arches and a source of anterior open bites. Smith,¹⁵ Swindler,¹⁶ de Coster¹⁷ and Kelsey¹⁸ reported similar findings in humans and monkeys. Although bottle feeding and sucking habits were strikingly related to open bite, the correlation was not consistent. Weinberger^{19,20} and Bowden¹⁰ point out that variations in the skeletal pattern upon which the muscular habit is superimposed are also important.

The influence of the Type A soother on anterior gum pads of infants in this study appears to agree with the theory of Muller and Balters on the same subject as described by Picard.²¹ Conclusive evidence would, however, require a larger sample of newborn infants using this type of soother. Unfortunately, the physiological bottle nipple (Nuk Sauger) was not available for this study; but these nipples are now obtainable in Canada. A large sample of healthy, full-term babies using this type of bottle nipple should now be studied to evaluate its influence on the infantile gum pad relationships. A comparison between these bottle-fed babies and another group of breast-fed babies with similar background and physical make-up would certainly yield important information.

The relation between anterior gum pad relationships and over-bite of primary incisors was not fully conclusive at this stage because of the relatively short duration of the study and the few infants having the primary incisors during this period. Nevertheless, our findings agree with those of Sillman^{2,22} and contradict those of Clinch.^{1,23} Consequently, another study with a large sample of infants from birth to three years is warranted.

Orban, according to Sicher,²⁴ pointed out that the eruption of the primary permanent dentition stimulates the formation of alveolar bone which is added to the basal bone. Chapman²⁵ said: "The teeth — deciduous and permanent — have no effect on the growth of the basal portions of the jaws; the teeth are responsible for the development of the alveolus, but if the basal portions of the jaws are insufficient the teeth do not cause such alveolar growth that they (the teeth) are able to align themselves correctly."

The same author went on to say: "The writer's clinical experience leads him to the conclusion that a condition at 2½ years or so, which he would have called "excessive overbite" previously, is normal. . . . Hence the necessity for further study of the deciduous dentition, particularly in the same individual, so that the changes which occur may be followed by series of models. Those who have subjects available will, it is hoped, allow casts of their teeth to be made from time to time."

Friel²⁶ also stated: "When the incisors erupt, the maxillary incisors overlap the mandibular incisors to a very considerable extent."

All the above authors agreed that overbite of the primary incisors is normal.

The degree of open bite found in this study was very small except in one infant whose open bite approached 4 mm. This infant still did not have erupted primary incisors at the end of 8 months. All infants who initially had open bites and who had their primary incisors at the end of 8 months showed an overbite relationship of their primary incisors. The remainder who had open bites still did not have their primary incisors at the end of eight months. Since these discrepancies were small, rapid alveolar bone growth could have compensated for these defects provided there was no severe skeletal growth deficiency of the dental arches. Further research with experimental animals or human infants is indicated in this field of growth and development.

The sucking habits (soother, thumb and finger sucking) started in the first 3 months of infancy in this study. Feeding methods (breast and bottle feeding) appeared to have little influence in initiating oral habits. This conclusion is in agreement with reports by Klackenberg,²⁷ Fredeen²⁸ and Haas,²⁹ strongly suggesting that the infantile sucking mechanism is either inborn or instinctive, as indicated by Hass,²⁹ Pearson³⁰ and Lawes.³¹⁻³³

Although this study was intended to continue for 36 months, a large segment of the sample was lost. Therefore, one can only speculate on the effects of various feeding and sucking habits after 8 months. It appears that the persistent use of any soother produces deformity of the dental arches such as anterior open bite and maxillary collapse, resulting in posterior crossbite. The ill effects of persistent thumb or finger sucking has been adequately documented elsewhere. It is also common knowledge that a deviate swallow is almost invariably a result of a sucking habit after the habit has been discontinued. This abnormal swallowing tends to maintain the deformity initiated by the sucking habit, and the deformity is frequently accompanied by a speech defect, requiring combined speech therapy and myofunctional therapy.

Figures 1 to 5 illustrate the variety of occlusions found when different feeding methods were used in combination with soothers or sucking habits.

Conclusions

Feeding methods and oral habits, including soother sucking, were studied in infants who were followed from birth to determine the character of the gum pad relationships at 4 months and 8 months. The incidence of various abnormal gum pad relationships was recorded. The findings indicate that oral habits had a definite influence on the infantile gum pads, resulting in a significant increase in the incidence of anterior open bite relationships.

Continued on page 142



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Cementum in cleidocranial dysostosis

L. A. Chapnick, DDS

J. H. P. Main, BDS, FDS, PhD, FRCD(C), MRC Path
Toronto

Twenty-two permanent and eight deciduous teeth were studied from two cases of cleidocranial dysostosis. Two permanent teeth had secondary cellular cementum, and in one of these it was present in small patches only. The remaining permanent teeth and all the deciduous teeth had primary acellular cementum only. The thickness of the cementum was much below normal.

L'étude traite de vingt-deux dents permanentes et de huit dents de lait dans deux cas de dysostose cleidéo-crânienne. Deux dents permanentes étaient atteintes de ciment cellulaire secondaire, et l'une d'elles, seulement sous forme de petites plaques. Les autres dents permanentes et toutes les dents de lait étaient atteintes seulement de ciment acellulaire primaire. La couche de ciment était bien inférieure à la normale.

Cleidocranial dysostosis is a condition in which one or both clavicles are absent or hypoplastic, the skull is abnormally broad and the closure of the fontanelles is delayed. It was described first in 1898 by Marie and Sainton¹ and since then several hundred cases have been reported. The syndrome is transmitted on an autosomal dominant basis although many cases arise spontaneously (Witkop-Oostenrijk).² Total or partial failure of permanent tooth eruption is a feature of the condition as are the presence of supernumerary or supplemental teeth and frequent dilacerations of the roots.

No satisfactory explanation has so far been advanced for the failure of tooth eruption, but Rushton³ from a study of nine teeth reported that in this condition either no cellular cementum or minute patches only are found on the teeth, whether erupted or unerupted. He noted, however, that acellular cementum attained a thickness comparable to that on teeth of normal patients, although he gave no measurement of thickness. Alderson⁴ studying three affected cases in 1960, described only the presence of acellular cementum, apparently from macroscopic examination of a single extracted tooth. Reporting on 15 deciduous and permanent erupted teeth of a 16 year old female, Smith⁵ found only isolated areas of secondary cementum.

Zander and Hurzeler⁶ convincingly demonstrated that the apposition of cementum in man is a continuous process throughout the age span that they studied (11 to 76 years). The thickness of cementum increases in direct proportion to age, an unusual observation in that growth processes usually decrease with advancing age, but no doubt reflecting the necessity for continued renewal of the collagen bundles attaching the tooth to its socket. Cementum on normal teeth was thinner near the cemento-enamel junction and thicker in the apical areas.

This report is of two cases of cleidocranial dysostosis from whom 30 teeth were removed, with particular emphasis on the cementum.

Case 1

This 18 year old male Caucasian presented to the Faculty of Dentistry, University of Toronto, complaining of failure of eruption of his permanent teeth.

The patient was aware of having a congenital abnormality with absence of clavicles, but did not realize the dental implications. History, clinical and radiological examinations revealed that he had cleidocranial dysostosis and mild

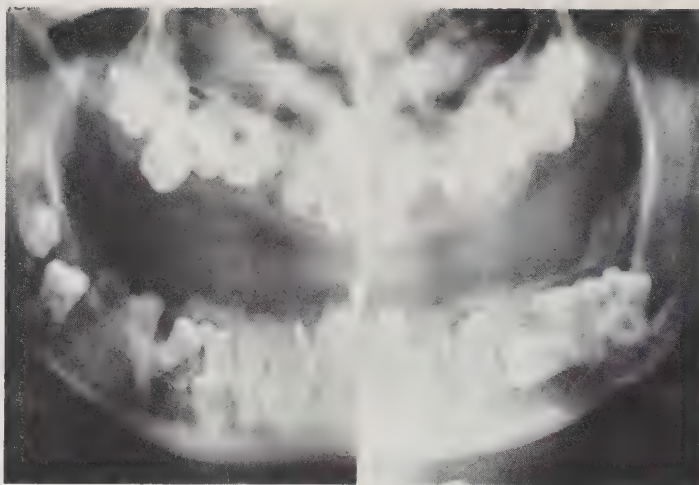


Fig 1 Panoramic radiograph of Case 1, an 18 year old man.

congenital aortic stenosis. There was no family history of the condition. He was of average size and weight. No erupted teeth were present in the mouth, and the alveolar ridges were rather irregular in contour and well formed. Radiographs showed numerous unerupted teeth, including many supernumeraries (Fig 1).

Laboratory investigations including haemoglobin, haematocrit, complete blood count and urinalysis were within the normal range.

Surgery — The patient was taken to the operating room on two occasions, when 22 unerupted and impacted teeth were removed under general anaesthesia. Gross examination revealed dilaceration of many of the roots. There were also many supernumerary teeth. The patient withstood the procedures well and was discharged two days postoperatively on each occasion.

Pathology — Twenty-two teeth were received (Fig 2), of which 14 were recognizable from the permanent dentition, although some had marked dilaceration of the roots. Eight were of abnormal morphology and were classified as supernumerary or supplemental teeth.

Eight teeth were studied microscopically: four bicuspsids, one cuspid, two molars and one incisor. Each tooth was sectioned longitudinally with one-half of the tooth being decalcified and step serial sections stained with haematoxylin and eosin; the remaining half was used to prepare ground sections.

In all teeth sectioned, some periodontal membrane was present and in every case it was clearly apparent that the attachment of the Sharpey's fibres was poor and sparse. The membrane itself was less collagenous than normal. In one tooth, a molar, a fragment of alveolar bone had been removed with the tooth and the periodontal membrane was disorganized, poorly collagenized, and no fibres were seen running directly from bone to tooth.

The thickness of the cementum was measured by means of a calibrated graticule in the microscope eyepiece.

The maxillary left incisor had no secondary cementum, but had an interesting thickness of primary cementum from 25 microns at the cervical margin to 125 microns at the apex. One large second mandibular bicuspid had not secondary cementum, but primary cementum increased in thickness from 20 microns at the cervical margin to 80 microns at the apex. A small maxillary first bicuspid probably supplemental, showed normal distribution of primary and secondary cementum, the thickness of the former being from 10 to 25 microns and the latter from 0 to 45 microns, but with poor fibre attachment in all areas. The cuspid had patches of secondary cementum and only small amounts of primary cementum. The developing third molar had open apices and no cementum of either type. The maxillary left second molar, the maxillary left first and the maxillary right first bicuspsids showed no secondary cementum but had uniformly thin primary cementum on the roots, in the 15–30 micron range.

Case 2

This 10 year old male Caucasian presented to the Faculty of Dentistry because no permanent teeth had erupted other than his permanent first molars. A diagnosis of cleidocranial dysostosis was made on the basis of clinical and radiological features.

Physical examination revealed a well nourished but under-developed male, 49 inches in height and 53 pounds in weight. The patient had partial aplasia of both clavicles, and congenital absence of both maxillary lateral incisors. The remaining permanent teeth were present but unerupted.

Family history indicated that the patient's father and sister, the only sibling, also had this condition.

Surgery — All eight remaining primary teeth were removed under local anaesthesia in the hope that this might lead to eruption of the permanent successors. Gross examination revealed root resorption in most of these teeth.

Pathology — Eight deciduous teeth were received (Fig 3). All could be readily identified morphologically and five had marked root resorption.

Three teeth were studied microscopically: the maxillary right second molar, maxillary left first molar, and mandibular left cuspid. While no secondary cementum was observed in any of these teeth, there was a small increase in the thickness of acellular cementum in the trifurcation areas compared to the rest of the surfaces.

The maxillary left first molar had an average thickness of 5 microns intra-radically, while 3 microns of primary cementum was seen on the root surface. The maxillary right first molar showed an average of 12 microns of primary cementum intra-radically, with 4 microns of primary cementum on the root surface. The mandibular left cuspid had primary cementum of a thickness between 5 and 10 microns.

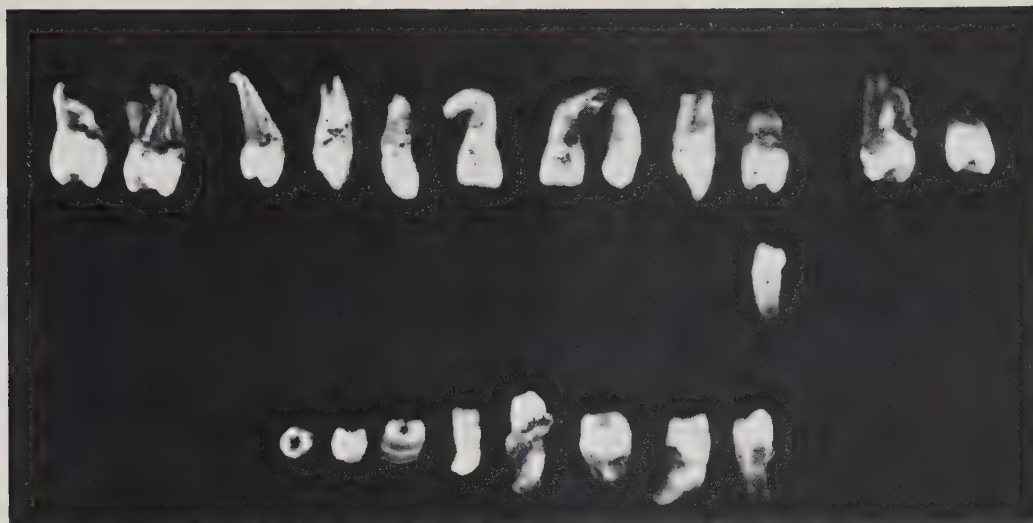


Fig 2 Teeth submitted for examination from Case 1.



Fig 3 Teeth extracted in Case 2.

Discussion

In the permanent unerupted teeth studied, one tooth had a normal quantity of secondary cementum while one other tooth had small patches of secondary cementum. All other teeth had no secondary cementum. The acellular or primary cementum thickness varied to a maximum of 125 microns at the apex of the maxillary left incisor. However, Zander and Furzeler⁶ reported that in single-rooted teeth in the 11-20 age group, the average cementum thickness, primary and secondary, at the apex was 189 microns. Thus, the teeth examined had a significantly reduced primary cementum thickness overall, in agreement with Smith's⁵ observations.

No secondary cementum was seen in any of the erupted deciduous teeth; and while there was a slight increase in thickness in the trifurcation region of the molars, the primary cementum thickness was also much below normal values.

One of the reasons for interest in cleidocranial dysostosis is that it may help to shed light on the mechanism of tooth eruption. Of the many theories that have been advanced to account for this process, only one seems at all compatible

with the findings in this condition: it is the hypothesis advanced first by Kostlan et al⁷ that the eruptive force is derived from the cells of the periodontal membrane exercising a tractive effect on the tooth. In cleidocranial dysostosis where the lack of cementum presumably precludes a sound attachment of fibres to the tooth, and hence prevents or reduces the tractive force, eruption would not be expected to occur or would occur only in the few teeth which had rather more cementum than most. This explanation does not, however, account for the eruption of deciduous teeth in dysostotics, where no cellular cementum is found and the primary cementum is severely reduced in thickness.

The findings in the present study, in agreement with those of Rushton³ and Smith⁵ show that occasional patches of secondary cementum do occur on the permanent teeth of cleidocranial dysostotics, and this could explain why a few erupted teeth are found in these patients. In isolated teeth, such as the bicuspid in Case 1, where there was a normal distribution of cellular and acellular cementum, albeit abnormally thin, the lack of eruption may be explicable on the grounds of impaction. Certainly, in Case 1, the number of

Infant occlusion . . .

Continued from page 137

These articles are based on an investigation pursued by Dr. D. K. Cheung in partial fulfilment of the requirements for an M.Sc. degree at the University of Alberta.

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Cleidocranial dysostosis

unerupted teeth, from the normal series plus supernumeraries, that were crowded into the jaws makes this an eminently tenable explanation.

The findings in this study tend to support the concept that the initial formation of cellular cementum is a result or consequence of eruptive movements.

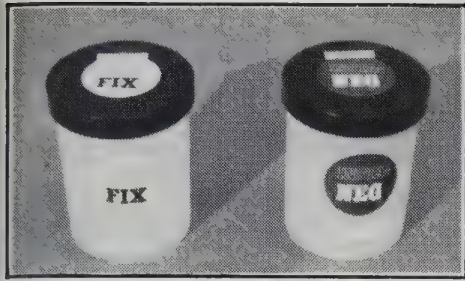
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carried out. Dr. Main is professor of oral pathology, Department of Oral Medicine and Pathology, Faculty of Dentistry, University of Toronto, 124 Edward St, Toronto M5G 1G6.

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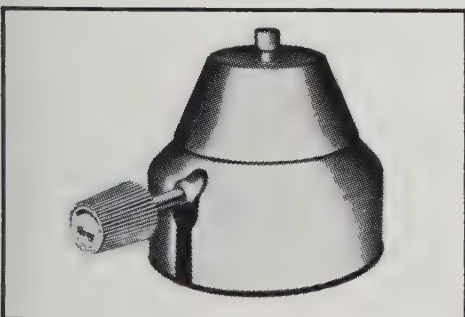
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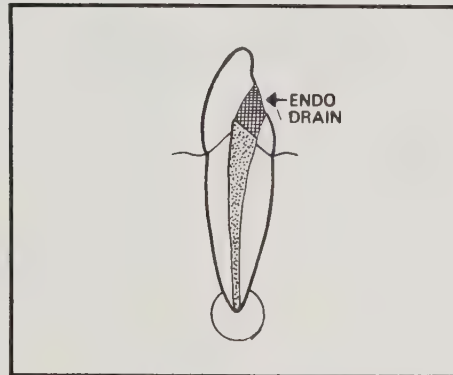
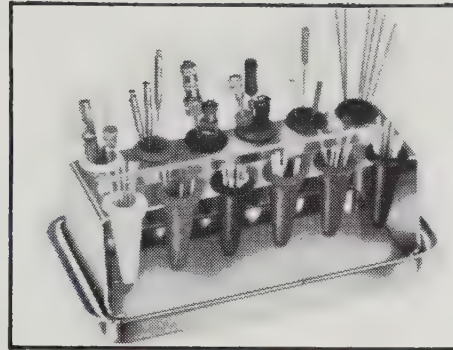
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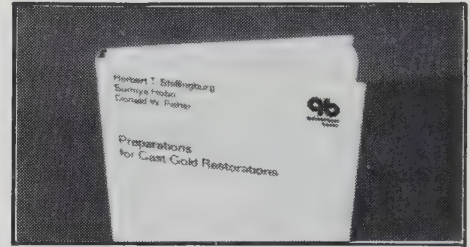
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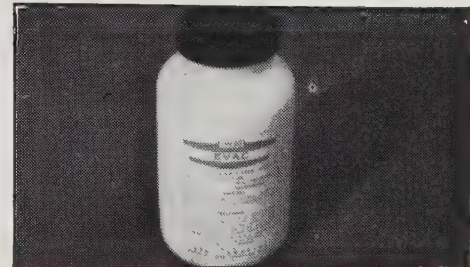
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Management of an odontogenic keratocyst: Report of a case

I. F. Goodin, DDS,
L. J. Frost, DDS, MD, FRCD(C)
Ottawa

The jaws contain within their marrow odontogenic and non-odontogenic epithelium. Both occur in the maxilla, but only the former is encountered in the mandible. Non-odontogenic epithelium is seen only in the maxilla. It mainly represents the residue of epithelium covering the embryonic processes that give rise to the upper jaw. As expected, these remnants are found along the lines of closure of embryonic processes.¹

Odontogenic epithelium can generate a variety of cystic lesions whose real identity may not be apparent, as the following case report illustrates.

Report of a case

On December 17, 1971 a 24 year old male patient was referred to one of us (L.J.F.) because of a large radiolucent area in the left mandibular first molar region. The area was curetted in a routine manner under local anaesthesia.

A 6×3 cm specimen of the lesion was subsequently submitted for pathological examination. It consisted of several small fragments of fleshy tissue, apparently forming part of the wall of a cystic structure. Microscopically, the specimen consisted of numerous irregular fragments of epithelial and connective tissue. The latter was densely infiltrated with many chronic inflammatory cells, principally plasma cells, lymphocytes and histocytes. Also evident was a fibroblastic proliferation. The cyst lining, consisting of stratified squamous epithelial cells resembling normal or slightly hypertrophic buccal mucosa, was ulcerated in several foci. Also present were a few fragments of bone. There was no sign of a tumour. The diagnosis at the time was "dentigerous cyst."

The patient was re-examined in December 1972. As there was no evidence of resolution of the lesion it was decided to

perform root canal therapy in the first molar and then intervene surgically for a second time. The tooth, which was non-vital, was treated endodontically in a routine fashion using the warm gutta percha technique (Fig. 1, 2). The canals were deliberately overfilled in view of the surgical intervention that was to follow. The patient was then referred for oral surgery which was performed on February 2, 1973.

Once again, two irregular membranous pieces of tissue measuring 1.5 x 2.5 cm were submitted for pathological examination. The larger fragment was described as a thin-walled broken cyst. The smaller piece contained an intact thin-walled cyst 0.8 cm in diameter. Within the latter was a white flaky material. Microscopically, it was a cystic structure lined by extensively ulcerated stratified squamous epithelium. The cyst wall was densely collagenized and infiltrated with chronic inflammatory cells. Focally, in the walls, there were small particles of bony tissue that seemed to be resorbing. The diagnosis at this stage was "keratocyst."

Periapical (Fig 3) and panoramic (Fig 4) radiographs taken in November 1974 show almost complete bone regeneration.

Discussion

The identity of this lesion was a matter of considerable interest. Certainly it was not a dentigerous cyst, as stated in the first pathologist's report. It might have been a radicular cyst if the pulp of the first molar had been necrotic, but this information was no longer available. The histological description ("resembling normal mucosa") was more in keeping with that of a keratocyst. Radiologically, moreover, the lesion was multilocular and hence more likely a keratocyst than a radicular cyst. The endodontic therapy of the adja-



Fig 1 Periapical radiograph taken on December 12, 1972 shows radiolucent lesion between roots of the left mandibular first molar.

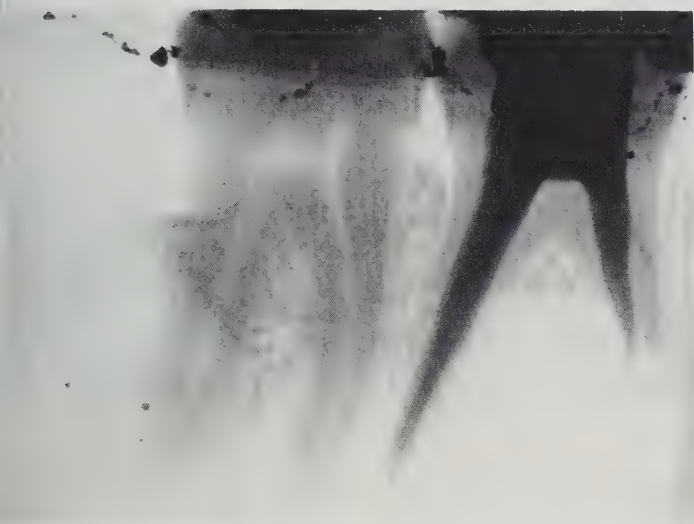


Fig 2 Periapical radiograph taken on January 1, 1973 following endodontic treatment of left mandibular first molar.

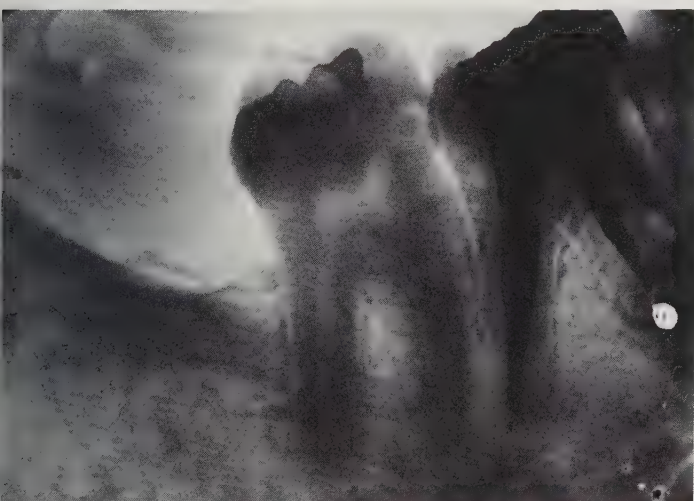


Fig 3 Periapical radiograph taken in November 1974 shows bone regeneration at site of previous lesion.



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Fig 4 Panoramic radiograph taken in November 1974.

cent molar was therefore probably irrelevant as this tooth was not causally related to the cyst. Since the tooth was non-vital, however, it is possible that ultimate healing would have been delayed without endodontic treatment.

Keratocysts belong to the group of odontogenic cysts which includes primordial, dentigerous, radicular, periodontal and gingival cysts as well as keratinizing calcifying odontogenic cysts. All are derived from epithelium associated with the development of the dental apparatus. Their diagnosis and identification depends on microscopic examination coupled with close study of the clinical and radiographic findings.

Odontogenic keratocysts may occur at any age, the mean age of occurrence being 35 years.² The majority are found in the mandible, especially in the third molar-ascending ramus area. Multiple cysts occur with some frequency. There are no characteristic clinical manifestations. The more common features are pain, soft-tissue swelling and expansion of bone.

Radiographically, the lesions may be unilocular or multilocular. Many give the appearance of dentigerous cysts if they are associated with impacted or unerupted teeth. However, the vast majority of these cysts are found to be separated from the tooth by a layer of fibrous tissue. Proximity to the roots of adjacent normal teeth sometimes causes resorption of these roots.

Histologically, the cyst wall is generally thin. The epithelium is stratified squamous in type, usually with parakeratosis. The connective tissue wall often shows small islands of epithelium similar to the lining epithelium. Some of these islands may be actual daughter cells or folds of the lining epithelium.

The lumen may be filled with a straw-coloured fluid or with a thicker creamy material. Sometimes the lumen contains much keratin, while at other times it has little. Cholesterol may also be present.

Treatment usually consists of surgical excision. Complete eradication is difficult, however, because the cyst wall is very thin and friable and may easily fragment. These features, together with the presence of satellite cysts, may account for a high recurrence rate. Since recurrence may be long delayed in this lesion, follow-up with annual radiographs is essential for at least five years after surgery.

Dr. Goodin is a general practitioner at 2286 Carling Ave., Ottawa K2B 7G2. Dr. Frost is an oral surgeon.

- 1 Bhaskar, S. N. Synopsis of oral pathology. Ed 4. St. Louis, Mosby, 1973.
- 2 Shafer, W. G., Hine, M. K. and Levy, B. M. A textbook of oral pathology. Ed 3. Philadelphia, Saunders, 1974.

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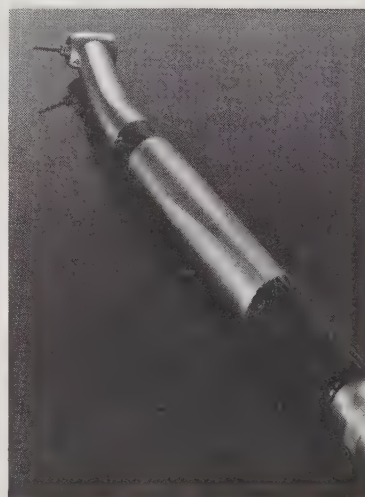
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FACULTY OF DENTISTRY

NOTICE OF VACANCY
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Applications are invited from registered Dental Hygienists for the position of Sessional Lecturer (part-time) in the Department of Oral Medicine. Contract for two full days per week and may run for the whole year, or merely for the academic year, starting 1 July, 1976, at the earliest. Responsibilities include teaching radiographic principles and techniques to dental hygiene students.

Salary to be negotiated.

Applications should be submitted to:

Dr. J.D. Spouge
Professor and Head, Department of Oral Medicine
Faculty of Dentistry
University of British Columbia
2075 Wesbrook Place
Vancouver, B.C., Canada V6T 1W5

UNIVERSITY OF BRITISH COLUMBIA
FACULTY OF DENTISTRY

NOTICE OF VACANCY
Department of Oral Surgery

Applications are invited for the position of Assistant Professor in the Department of Oral Surgery. Responsibilities include clinical and didactic instruction to dental undergraduates, and research activity. The Department proposes to inaugurate a graduate program leading to specialty qualification in Oral Surgery, in which the appointee would play a major role.

Applicants should have had specialty training and academic experience in Oral Surgery. Salary is negotiable according to qualifications and experience. Limited extramural private practice is permitted and applicants should be registered or registrable in the Province of British Columbia. The effective date of the appointment is September 1st, 1976.

Enquiries with current curriculum vitae and names of three referees should be sent to:

Dr. D. T. Zack
Assistant Dean, Faculty of Dentistry
University of British Columbia
2075 Wesbrook Place
Vancouver, B.C., Canada
V6T 1W5

THE UNIVERSITY OF BRITISH COLUMBIA
FACULTY OF DENTISTRY

NOTICE OF VACANCY

Applications are invited for the full-time position of Instructor/Assistant Professor in the Department of Oral Medicine, University of British Columbia, Vancouver, Canada, to assist in the teaching of Periodontology. Candidates should have completed an accredited postgraduate training programme in Periodontology and be registrable as a dentist in the Province of British Columbia.

Duties include present participation in the undergraduate teaching of periodontics and potential involvement in a future postgraduate certification programme which the Department plans to offer. Salary and rank negotiable according to qualification and experience. One full day per week of extramural private practice permitted.

The dental school is situated close to the city of Vancouver, population one million, moderate West Coast climate, and good recreational facilities.

Applications should be sent to:

Dr. J.D. Spouge
Professor and Head, Department of Oral Medicine
Faculty of Dentistry
University of British Columbia
2075 Wesbrook Place
Vancouver, B.C., Canada V6T 1W5

UNIVERSITY OF BRITISH COLUMBIA
FACULTY OF DENTISTRY

NOTICE OF VACANCY

Applications are invited for the full-time position of Associate or Assistant Professor in the Department of Oral Medicine, University of British Columbia, Vancouver, Canada, to participate in the teaching of Oral Medicine/Oral Diagnosis. Candidates should have had postgraduate training including hospital dentistry and diagnosis, preferably have had teaching experience, and be registrable as a dentist in the Province of B.C.

Salary and rank negotiable according to qualifications and experience. One full day per week of extramural private practice permitted.

The dental school is situated close to the city of Vancouver, population one million, moderate West Coast climate, and good recreational facilities.

Applications should be sent to:

Dr. J. D. Spouge
Professor and Head, Department of Oral Medicine
Faculty of Dentistry
University of British Columbia
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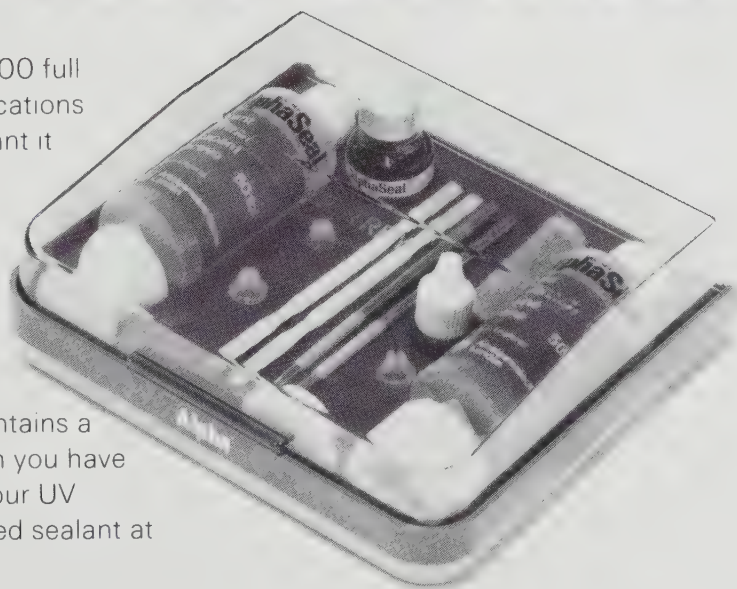
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April/Avril 1976/Volume 42/No 4

Canadian Dental Association/Association Dentaire Canadienne



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AIB APPROVED FEE GUIDES DEEMED IN COMPLIANCE

The most recent meeting of CDA representatives with the Anti-inflation Board has resulted in the following interpretation:

That where a provincial dental association issues a fee guide and the increases in the guide are demonstrated to the Board to be only sufficient, in the case of the average practitioner, to recover his increased expenses and improve his income by \$2400 in the 12-month period covered by the guide, then any practitioner who follows such a guide in the period prior to the adoption and in the 12-months following its adoption will be deemed to have complied with the AIB guidelines.

It is suggested that associations which have issued fee guides in the past should submit their revised fee guides to the AIB, together with a statistical analysis demonstrating that the increases in the revised guide are estimated to return to a typical and average practitioner only his increased expenses plus \$2400.

If an association wishes to put a revised fee guide into effect prior to its approval by the Board, they should warn their members that adjustments will have to be made if the Board approves lesser fees. The CDA is prepared to assist any association in preparing and making submissions to the AIB in support of revised fee guides.

QUEBEC DENTAL SPECIALISTS DEFEND FEE HIKE

Representatives of Quebec's 188 dental specialists appeared recently before the Quebec Professions Board to defend a 25 per cent fee increase instituted last July. The representatives pointed out that the increase is the first in three years and will not increase doctors' profits.

Eight specialties are represented by the Federation of Quebec Dental Specialists, whose members' annual salaries average \$26,000. A massive brief was presented to the professional board outlining hundreds of fees for various treatments and services. The brief urged the board to allow specialists to modify fees "to allow for reductions for ordinary cases and increases for cases with special complications."

NEW REGISTRAR FOR B.C. COLLEGE

R.B. Telford of West Vancouver has been appointed to replace retiring Douglas J. Yeo as registrar of the College of Dental Surgeons of British Columbia. Dr. Yeo continues as assistant dean of the U.B.C. faculty of dentistry.

Dr. Telford was born and educated in Vancouver and graduated from the University of Oregon dental school in 1949. Dr. Telford was elected a member of the College Council in 1969-72 and was a vice president in his final year. He has been a part time member of the dental faculty and was chairman of the B.C. Board of Examiners in 1973-75. Currently he is president of the Canadian Academy of Restorative Dentistry.

LES SPECIALISTES DENTAIRES DU QUEBEC DEFENDENT L'AUGMENTATION DES HONORAIRES

Les représentants des 188 spécialistes dentaires du Québec se sont présentés récemment devant la Régie des professions du Québec pour justifier la hausse de 25% des tarifs qui a été instituée en juillet dernier. Ils ont souligné le fait que cette hausse est la première qui ait été appliquée depuis trois ans et qu'elle n'augmentera pas les revenus des praticiens.

Huit spécialisations sont représentées par la Fédération des spécialistes dentaires du Québec, dont les salaires annuels moyens sont de \$26,000. Un volumineux mémoire a été présenté à la Régie des professions pour indiquer des centaines d'honoraires pour divers traitements et soins. Le mémoire exhorte la Régie à permettre aux spécialistes de modifier les tarifs "afin de permettre des réductions de prix pour des cas ordinaires et des augmentations pour des cas où des complications particulières peuvent survenir".

GUIDES D'HONORAIRES APPROUVES PAR LA COMMISSION ANTI-INFLATION CONSIDERES CONFORMES

La dernière réunion des représentants de l'ADC avec la CAI a donné lieu aux interprétations suivantes:

Lorsqu'une Association dentaire provinciale publie un guide des honoraires et qu'il est prouvé à la Commission que les augmentations proposées par ce guide ne suffisent, dans le cas d'un praticien ordinaire, qu'à couvrir l'augmentation de ses frais d'exploitation et n'améliorent son revenu que de \$2,400 au cours de la période de 12 mois à laquelle se réfère le guide, le praticien qui suit le guide en question pendant la période précédant l'adoption dudit guide et au cours des douze mois qui suivent son adoption sera considéré comme s'étant conformé aux directives de la CAI.

Nous suggérons que les associations ayant déjà publié dans le passé des guides d'honoraires, soumettent à la CAI leurs guides révisés ainsi qu'une analyse statistique prouvant que les augmentations figurant au nouveau guide ne rapportent au praticien ordinaire et moyen que l'équivalent de l'augmentation de ses frais d'exploitation plus la somme de \$2,400.

Si une Association met en vigueur un guide révisé d'honoraires avant d'obtenir l'approbation de la Commission, elle devra avertir ses membres que leurs honoraires feront peut-être l'objet de certains ajustements si la Commission approuve des tarifs moins élevés. L'ADC se tient à la disposition de toute association dans la préparation et la soumission des mémoires justifiant les guides d'honoraires révisés auprès de la CAI.

NOMINATION D'UN NOUVEAU REGISTRAIRE AU COLLEGE DE LA COLOMBIE-BRITANNIQUE

Le Dr R.B. Telford de West Vancouver vient d'être nommé au poste de registraire du Collège des chirurgiens dentistes de la Colombie-Britannique pour succéder au Dr Douglas J. Yeo qui prend sa retraite. Dr Yeo continue cependant d'exercer à titre de doyen-adjoint de la faculté d'art dentaire de l'université de Colombie-Britannique.

Né et élevé à Vancouver, Dr Telford a obtenu son diplôme de l'école dentaire de l'university of Oregon. Il a été élu membre du Conseil du Collège pour 1969-72 et est devenu vice-président au cours de la dernière année de son mandat. Il était également membre à temps partiel de la faculté d'art dentaire et président du Conseil des examinateurs de la Colombie-Britannique en 1973-75. Actuellement il occupe la présidence de l'Académie canadienne de la dentisterie restauratrice.

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JOURNAL

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de l'Association Dentaire Canadienne
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Editorial

Practice management	164
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Special Features

CFDE 1975 Progress Report	177
Rethinking practice management today:	
The nature of the practice management problem — Reid	190
The changing emphasis on practice administration — Fleming and Ellis	199
The dentist as business administrator — Heffernan	201
Managing a dental practice — Link	203
Personal growth — Marshall	205

Regular Features

Letters to the editor	161
Dentistry in the news	167
Les actualités dentaires	174
Deaths	172
In memoriam	172

Articles

Prosthodontics:	
Reciprocal arms of direct retainers in removable partial dentures — Harrop and Javid	208
L'obturateur du voile du palais — Valiquette et Gravel	213

Classified advertising	216
------------------------	-----

Advertisers' index	220
--------------------	-----

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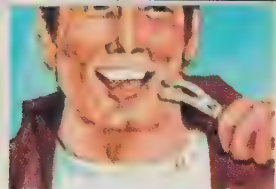
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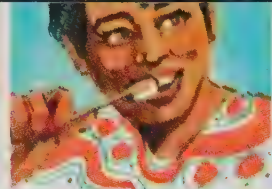
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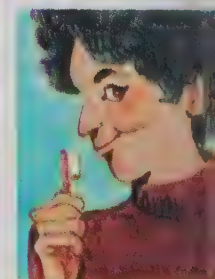
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Announcements / Avis

Information about other meetings or courses, including American continuing education courses, may be obtained by writing to CDA headquarters.

Canadian Dental Association
1976, Edmonton, Alta, Sept. 12-15.

Fédération Dentaire Internationale
1976, Athens, Greece, Sept 26-Oct 2;
1977, Toronto, Oct 22-28.

Canadian Meetings

College of Dental Surgeons of Saskatchewan, at Prince Albert, Sask.
May 6-8, 1976. T. K. Tomlinson, 317 Medical Building, Prince Albert, Sask.

Ontario Dental Association, at Four Seasons Sheraton Hotel, Toronto. May 9-12, 1976. Mrs. W. C. Durham, 230 St. George St., Toronto, Ont. M5R 2P1.

Les Journées Dentaires du Québec, at Queen Elizabeth Hotel, Montreal. May 12-16, 1976. Dr. M. R. Lang, 5171 Decarie Blvd., Montreal, Que. H3W 3C2.

Ontario Society of Clinical Hypnosis, at Royal York Hotel, Toronto. May 21-23, 1976. Dr. D. L. Stewart, 135 Division St., Guelph, Ont. N1H 1R7.

Northwest Academy of Dental Medicine, at the Empress Hotel, Victoria, B.C. May 27-30, 1976. G. H. Underwood, 601 Portland Medical Center, 511 SW Tenth Ave, Portland, Oregon 97205, USA.

Atlantic Provinces Dental Convention, at Fredericton, June 6-9, 1976. P. F. Manson, 564 Queen St, Fredericton, N.B. E3B 1B9.

The Association of Canadian Faculties of Dentistry / L'Association des Facultés Dentaires du Canada, Conference on Dental Education and Research, at the University of Alberta, Edmonton. June 14-16, 1976. Dr. G. W. Myers, 3042 Dentistry Pharmacy Centre, University of Edmonton, Edmonton, Alta. T6G 2H7.

JOURNAL OF THE CANADIAN DENTAL ASSOCIATION JOURNAL DE L'ASSOCIATION DENTAIRE CANADIENNE

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Les candidats intéressés sont invités à soumettre un curriculum vitae complet avant le 30 avril au:

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LETTERS TO THE EDITOR

Applied Health Sciences Inc.

I am sure most of the readers of the CDA Journal have been deluged with bargain mail order offers from companies operating in the U.S.A. Perhaps the experience of Dr. Berman and myself might be of interest.

Last June I ordered from Applied Health Sciences Inc. of New York (now of Opa Locka, Florida) a gross of burs and the accompanying bonus of free x-ray films. I received the films. However, three letters, the last one registered, have elicited no reply, no refund and no burs.

My colleague, Dr. Berman, ordered two thousand dollars worth of sundries from this same firm last August, specifically requesting that the items be sent all at the same time and not back ordered. Applied Health Sciences sent him an endless succession of single parcels. Any saving effected over Canadian prices was thus negated by the customs brokerage fee that had to be paid to clear each parcel.

One has to be very careful in selecting the mail order houses currently soliciting our business.

*T. C. Webb, DDS,
Gibsons, B.C.*

On October 24, 1975, I ordered 60 oz. tablets of Dispersalloy, and included in the order a Johnson and Johnson Wigle-Bug,

from Applied Health Sciences Inc. of Opa Locka, Florida, a subsidiary of Dento-Med Industries Inc. With the order I enclosed my cheque for \$695.00 to cover costs. The cheque cleared my bank account.

To day I have not received the material ordered, nor have they refunded my money. I have written the company asking for completion of the order, but I have received no reply.

On January 13, 1976, I sent a night telegram to the company asking for the return of my money as I had not received the order. I have had no reply. In addition, I have telephoned the company in Florida three times and have talked each time to a Mrs. Harriet Downing, an employee. She assured me they would process my cheque and mail it out.

I still have not received either the order or the refund of my money.

Could you please advise me on the action I may follow to protect my \$695.00?

*J. W. Bowie, DDS
West Vancouver, B.C.*

Editor's reply: Because of the mail involvement in both cases, we are sending this correspondence to the Security and Investigation Division of the Post Office in case a mail fraud is involved.

At the same time, we have approached

the Better Business Bureau and find there is another complaint registered against the company from Ontario. On the direction of the BBB, we are sending copies to their South Florida branch to see if they can investigate from there.

Since both correspondents are from B.C., we have been directed by the Federal Consumer Branch to ask them to contact the Director of Trade Protection, Department of Consumer Services for British Columbia, in Victoria.

New regulations, which became effective April 1 of this year, now require anyone importing materials to guarantee (by investigation) the clinical and therapeutic claims of the product. This makes it all the more important for dentists to deal with Canadian distributors who will stand behind their imports.

A significant number of complaints against Applied Health Services Inc. have also been brought to the attention of the American Dental Association. See news item below.

Editor's Note: Dr. J. W. Bowie of West Vancouver, author of the above letter, wrote a second letter to the Journal which arrived just before press time. This letter states:

"Please be advised that I have been notified that my order for 60 oz. Dispersalloy is at customs in Vancouver."

ADA INVESTIGATES FLORIDA MAIL-ORDER FIRM

The American Dental Association has launched an investigation into the operations of Applied Health Services, Inc., a mail-order dental supply firm headquartered in Opa Locka, Florida. The investigation was undertaken in response to the many complaints against the firm brought to the attention of ADA officials during the past several months.

Representatives of the ADA recently met with officials of Applied Health Services in the company's home office. Association representatives also met with the national certified public accounting firm responsible for the auditing of the books and records of Applied Health Services Inc., a publicly held corporation. The ADA has reported that officials of both the dental supply firm and the auditing firm were most co-operative and candid in their re-

sponses to Association inquiries regarding the company's difficulties.

The ADA representatives examined Applied Health Service's bank and financial statements, made an inventory check and examined current operations as well as plant and operating facilities.

ADA reported that preliminary analysis of the company's operation, both past and present, does not indicate that any fraud has been perpetrated. It appears that the company's current problems are largely the result of management mistakes in the past and undercapitalization. The firm is apparently taking steps to correct these problems and ADA reports that a check of current inventory indicates that orders from the company's new catalogue can, for the most part, be completed off its shelves.

The auditing firm is in the process of hiring a comptroller for Applied Health Services to be responsible for the business operations, while the company itself is seeking additional capitalization. Indications are that the company is attempting to either complete back orders or issue refund cheques as quickly as possible.

The Association has been in contact with Florida's Office of the Attorney General and has learned that complaints regarding Applied Health Services should be addressed to that office and should be detailed and include copies of purchase orders and cancelled cheques. Complaints should be addressed to: Stephen V. Rosin, Assistant Attorney General, Consumer-Counsel, State of Florida, Department of Legal Affairs, Office of the Attorney General, Tallahassee, Fla. 32304.

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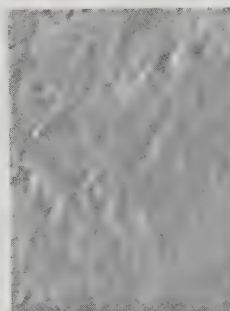
Significance: With taste so superior, your young patients will hardly need coaxing about brushing. And by brushing regularly, they'll get the anti-cavity ingredient they need — regularly.

Proven for its fluoride ion availability

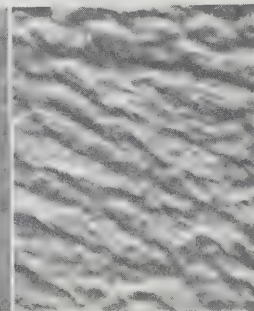
New Aim contains the established concentration of 0.4% stannous fluoride — an anti-cavity ingredient time-proven for its effectiveness as an aid in reducing the incidence of cavities. Aim also has a silica gel base, assuring that the fluoride ion availability is maintained during normal shelf life. In fact, laboratory tests show that the fluoride ion concentration in Aim is readily available for incorporation into tooth structure.

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Surface of normal tooth enamel (2000x) — sectioned and polished but left untreated — etched with 0.1N lactic acid, pH 4.5 for 10 minutes. Enamel surface shows extensive etching.

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EDITORIAL

Practice management

Are our dental schools doing a good job?
Are you doing a good job?

It is a fact that more than ever before, recent graduates are experiencing financial difficulties. Fewer of our graduates feel confident enough to commence practice on their own. More complaints involving poor communication are being registered against young graduates, and a great deal of misunderstanding concerning fees, poor case presentations, methods of collecting accounts, staff problems, etc. are surfacing every day. What is the cause? Is it the present economic situation? Is it consumerism? Are dentists just not business men? Can pre-professional training be blamed? Is there a growing lack of appreciation of dental services on the part of the public? Are courses in practice management at the undergraduate level adequately meeting the needs of the young dentist? If they are not, what can be done to improve them?

It was to address themselves to these last two questions that representatives of every dental school in Canada met on February 16th, 1976. This Teaching Conference, under the aegis of the CDA Council on Education, was sponsored by the CFDE.

An editorial is not the place to present the conclusions of the Conference. That will be done elsewhere in the Journal. However, it may be appropriate to ask you the question — Is the management of your office efficient and up to date? While it cannot be denied that many of the complaints which come to the attention of the licensing body in Ontario involve young dentists, it would appear that more experienced dentists are not immune to problems.

Some dentists are still using charts which are not adequate for today's needs, and therefore show up poorly when inquiries are conducted or lawsuits launched. The excuse

for not changing is that it would take too much time. I question that excuse. The time spent on this could prove to be very profitable. Filing seems to be a problem in many offices. Quite a few dentists use the "hunt" system — you keep hunting until you find it, which may take days. Book-keeping is becoming more complicated because of third-party involvement. Have you investigated lately to see if that area in your office can be improved? Even paying accounts can be a confused process in some offices. At the latest renewal time, over twenty Ontario dentists paid their licence fee twice. It seems they had not recorded the fact that they had already paid it and forwarded a second cheque, which had to be returned.

As the duties of auxiliaries change, much more care will have to be taken when scheduling patients, so that the office will run at optimum efficiency. Have you given any thought to that? Production-line dentistry, especially where we lose the personal touch with our patients, will prove disastrous to our professional status.

How long is it since you sat down in your own dental chair and got a patient's eye-view of your office?

Yes, it appears that the undergraduate courses in practice management at some schools could be improved, but let us not forget the older practitioner. Continuing education courses in practice management at the graduate level should be given high priority by our dental schools. It is a serious loss to the public when able practitioners of the art and science of dentistry are unable to serve the public to the fullest extent because of a lack of knowledge of the art and science of practice administration.

**Kenneth F. Pownall, DDS
Registrar,
Royal College of Dental
Surgeons of Ontario**



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Edmonton will host the 1976 CDA Convention and Board of Governors' Meeting and delegates will be able to sample first hand that famous western hospitality along with the sights and attractions of Canada's fifth largest metropolitan area.

Convention activities will be centred in three of the city's top hotels situated in the heart of the downtown area. The Exhibitor's displays and the Board of Governor's meeting will be held at the Hotel Macdonald, the largest of Edmonton's hotels and a distinguished landmark providing a pleasing combination of modern efficient services and quaint old world charm. The Macdonald is linked directly with McCauley Plaza, the city's underground shopping complex.

The opening ceremonies, officially launching the convention will be held

Sunday, September 12, at the Chateau Lacombe, famous for its revolving restaurant, La Ronde, which overlooks the picturesque North Saskatchewan River and downtown Edmonton. In addition to being a first class restaurant and cocktail lounge, La Ronde offers the most spectacular view in the city.

The convention's scientific program, the President's Ball and the Installation Luncheon will all be held at the Edmonton Plaza Hotel, the newest addition to the city's roster of fine hotels.

Delegates will find their free time filled with the challenge of exploration in Edmonton. The malls, plazas and centres are crowded with exciting shops, while restaurants throughout the city offer fine cuisine from around the world.

Don't miss the 1976 CDA convention in Edmonton!

CDHA Collage '76

"Collage '76" is the theme for the 13th annual Canadian Dental Hygienists' Association Convention to be held in Edmonton, September 12-15, in conjunction with the 1976 CDA Convention.

In keeping with the theme, the convention program will offer a collection of new and current ideas on such topics as orthodontics, hazards in the dental office, nutrition, and coping with the stresses of daily life. A top-notch scientific program, a lineup of interesting exhibits and table clinics, and an exciting social program will guarantee that this 1976 convention is the highlight of the year for Canadian hygienists.

For further information contact: Linda Risdon, 56 Granville Crescent, Sherwood Park, Alberta, T8A 3B8, or Marilyn Mabey, 114 Fairway Drive, Edmonton, Alberta, T6J 2C5.

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TEACHING CONFERENCE REVEALS PROBLEMS IN PRACTICE MANAGEMENT

Patient complaints to discipline committees across Canada have highlighted possible deficiencies in the current curricula of dental faculties. A five-year computer study of students, graduates and faculty in Canada has confirmed that possibly the problems lie within and can be solved by improved practice management instruction before, during and after graduation. The situation was revealed at the annual CDA Teaching Conference, held February 16 in Toronto, by the Council on Education.

The CDA Teaching Conference is underwritten by the Canadian Fund for Dental Education from a grant made available by Procter and Gamble Company of Canada Ltd. This year's area of discussion was Practice Management as taught in Canada's ten dental schools.

The Conference was chaired by Dr. Kenneth F. Pownall, registrar of the Royal College of Dental Surgeons of Ontario. Representing each of the faculties were: A. E. MacLeod, Dalhousie; Jacques Dufour, Laval; Jean-Paul Lussier, Montreal; H. Weld, McGill; Gordon Nikiforuk and R. L. Ellis, Toronto; Ralph W. Adams, Western Ontario; W. Walker Shortill, Manitoba; C.W.B. McPhail, Saskatchewan; S. G. Geldart, Alberta and W. B. Sipko and D. J. Yeo, both of the University of British Columbia. The CDA Students Conference representative was A. Plunz from the fourth year class, University of Saskatchewan.

Key-note speaker was Dr. Angus E. Reid, PhD, presently Assistant Professor of Sociology in the Department of Social and Preventive Medicine at the University of Manitoba with a cross appointment to the Faculty of Dentistry. Dr. Reid has just completed a computerized five-year study of dental

students, graduates and faculty members. The study was instituted by the Association of Canadian Faculties of Dentistry.

Special guest speakers were Diane Link, Robert Marshall and R. F. Hefernan, all members of Mardan Business Systems of Kitchener and consultants to many Canadian and U.S. dental practitioners. Dr. Reid and the members of Mardan Business Systems have contributed papers to the feature issue (page 178) this month on "Practice Management."

The deficiencies in practice management currently taught to dental students have resulted in a growing number of problems for disciplinary committees in the various provinces, as attested to by Drs. Pownall and Yeo who are both provincial registrars. Patient complaints are sky-rocketing, not simply because of consumerism but also because graduates appear to lack an understanding of the ethics and legal jurisprudence which must affect their practices.

The growing swing to dental students entering associateships seems to indicate that students are hesitant to enter solo practice straight from dental school. As one of the conference representatives pointed out, "Students are voting with their feet. They are entering associateships as a type of internship under a practising dentist." The lack of control over this situation and the lack of supervision of the associateships was a further cause for concern among the representatives.

As a result of this one-day conference, the representatives decided that further meetings were necessary. Dr. S. G. Geldart was voted president/chairman of the group and Dr. Angus E. Reid and Dr. Walker Shortill, both of whom are located at the University of Manitoba, were assigned the task of preparing the program and agenda for the next meeting. This was set for one of the days of the CDA Convention and Annual Board Meeting, September 12-15 in Edmonton.

DENTAL HEALTH MONTH CHARMERS



Grade 1 pupils in Winnipeg celebrated Dental Health Month with new toothbrushes and only wished they had a few more teeth to use them on. Celebrations across Canada were most successful — displays, brush-ins, posters and a new world record in the annual Smile-a-thon contest.

GOVERNMENT'S PROPOSED DENTAL CARE PLAN COMES UNDER ATTACK BY MANITOBA DENTISTS

The Manitoba Dental Association recently attacked the proposed dental care plan for children and accused the provincial government of "shameless duplicity" in its dealings with the association. The MDA stressed that it is not against the concept of a dental care program for children in the province, but it does object to the approach being taken by the government to implement such a program.

During a news conference called to explain the association's position, MDA President E. G. Derrett stated: "The children's dental care program, as proposed by the government, will be too costly, will result in excess personnel, and could threaten the livelihood of some rural dentists. The province has accepted none of the alternatives proposed by the association in the negotiations during the past year."

Dr. Derrett explained that the association wants to sign a master agreement with the province allowing dentists in private practice to operate the plan under government control. The MDA also suggests transporting children to centrally-located dental offices where dentists would supervise the treatment, rather than providing dental care in the schools.

The program proposed by the government would provide basic services in the schools for children from six to 12 years old. Dental care would be carried out by a dental nurse who would refer difficult cases to a dentist. Dentists would also be responsible for diagnosis, prescribing treatment plans and reading x-rays.

Twenty students from Manitoba are preparing to become dental nurses in a two-year program in Saskatchewan. In addition, eight Manitoba dental hygienists are taking a one-year course.

Provincial Health Minister Larry Desjardins, in a letter to the association, rejected the idea of a contract between the government and the association and stated the province would not change its plans to use dental nurses and deliver dental services in the schools. He also said the province would not give a fee-for-service payment for the initial examination and treatment plan provided by a dentist for a child, but would pay dentists on a per-diem or sessional basis.

Dr. Derrett said the government's duplicity is evident because while it was assuring the association that no

final decision had been made regarding the program, the province enrolled students in Saskatchewan's dental nurse program, passed umbrella legislation controlling dental auxiliaries and hired a director for the denticare program.

According to Dr. Derrett, dentists in private practice, using an increased number of auxiliaries with extra training, would provide the necessary services more cheaply. He maintains the MDA plan would cost less than half what the government program would cost to start and would operate less expensively in the long run.

The MDA says it can guarantee a solution to the problem of poor distribution of dentists by setting up externships which would require graduating dentists to practise in rural Manitoba for a year before being licensed. In addition to the externship, the association proposes to subsidize the facilities and earnings in rural areas which do not now have dental services.

The association has also proposed that fines up to several thousand dollars be imposed if it fails to meet the obligations set out in its contract with the government.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on February 29, 1976:

<i>Guaranteed Fund</i>	\$12.38;
<i>Fixed Income Fund</i>	\$16.57;
<i>Common Stock Fund</i>	\$29.02.

Total assets (market value) of the plan were \$22,164,854.62.

The following portfolio purchases and sales occurred during the preceding month: bought \$300,000 Ford Motor Credit Co. of Canada note, \$300,000 Provincial Bank of Canada note,

\$70,000 Royal Trust GIR, \$200,000 Royal Trust GIR, 11,749 units Classified Fund Conventional Mortgage. Sold, \$8,500 Aquitaine Canada Ltd. note, 7 Bank of Nova Scotia rights. \$400,000 Banque Canadienne Nationale note, \$200 British Columbia Telephone Co. note, \$200,000 Royal Trust GIR, \$80,000 Royal Trust GIR.

For further information write to: CDA-sponsored Pension and Insurance Plans, 14 Madison Ave., Toronto, Ont. M5R 2S1.

Canadian honored by American forensic group

R.B.J. Dorion of Montreal was recently certified by the American Board of Forensic Odontology, the first Canadian to receive this honor. He was also appointed to the Board of Directors of the same organization.

Dr. Dorion is the newly-elected president of the Odontology Section of the Canadian Society of Forensic Science. Other officers elected to the Section's executive body are: D. E. Upton of Calgary, vice-president; and S. L. Kogan of London, secretary-treasurer.

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A New Book! **HANDBOOK OF CLINICAL ENDODONTICS.** By Richard Bence, D.D.S., M.S.; with the editorial assistance of Franklin S. Weine, D.D.S., M.S.D. This new handbook is a practical manual which employs a step-by-step approach to common endodontic procedures. It is organized around the three elements of endodontics: diagnosis; canal preparation; and canal filling. Excellent illustrations and radiographs clearly depict techniques, and a Table of Differential Diagnoses allows for accurate clinical assessment. July, 1976. Approx. 240 pp., 472 illus. **About \$11.55.**

New 8th Edition! **ORBAN'S ORAL HISTOLOGY AND EMBRYOLOGY.** Edited by S.N. Bhaskar, B.D.S., D.D.S., M.S., Ph.D. For the most current information available on oral histology and embryology, consult the new edition of this outstanding book. Incorporating the expertise of world renowned authorities, initial chapters examine the general development of the oral cavity and teeth. Specific chapters then investigate the associated tissues and organs. May, 1976. Approx. 416 pp., 608 illus. **About \$17.80.**

A New Book! **COMMUNICATION IN THE DENTAL OFFICE: A Programmed Manual for the Dental Professional.** By Robert E. Froelich, M.D., F.A.P.A.; F. Marian Bishop, Ph.D., M.S.P.H.; and Samuel F. Dworkin, D.D.S., Ph.D. For the first time a book on behavioral science for dental personnel is now available. Exploring the basic principles of verbal and non-verbal communication, this new book reinforces theories with relevant examples and detailed sample interviews. Topics discuss: initial contact, patient's mental state, analyzing special problems, and more. March, 1976. Approx. 128 pp., 30 illus. **About \$7.40.**

A New Book! **ESSENTIALS OF CLINICAL DENTAL ASSISTING.** By Joseph E. Chasteen, D.D.S. Easy to read and understand, this highly useful book presents the essential elements of clinical dental assisting in a non-technical style. In examining all dental specialties, this new book explores the types of services performed in general and specialty dental practices. Pertinent topics include: four-handed dentistry, procedures, and use and maintenance of dental instruments. November, 1975. 324 pp., 542 illus. **Price, \$14.65.**

A New Book! **DENTAL PRACTICE PLANNING.** By William H. Howard, B.S., D.M.D., F.A.C.D., F.A.G.D. If you find the business aspects of your practice complex, this unique book will provide you with useful guidelines and new insights in ways to achieve greater financial and professional success. In a checklist approach, relevant topics explore: choosing a locality, designing an office, fees and collection, supply and inventory control, etc. November, 1975. 292 pp., 65 illus. **Price, \$19.45.**

New 3rd Edition! **COMPREHENSIVE REVIEW FOR DENTAL HYGIENISTS.** Edited by Shailer Peterson, B.A., M.A., Ph.D., F.A.C.D., F.I.C.D.; with 30 contributors. Useful as a comprehensive review for the National Board Exams or as a handy reference, the broad scope of this book provides your hygienist with essential up-to-date information on the basic sciences and clinical subjects. In this new edition, discussions examine: expanded duties, legal aspects, periodontics and oral prophylactic techniques, community dentistry and embryology. October, 1975. 314 pp. **Price, \$12.35.**

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ADA MEETING STUDIES EFFECTS OF EXPOSURE TO ANESTHETIC GASES

A special two-day meeting was conducted in February at the Chicago headquarters of the American Dental Association to study the possible effects on the health of dental office personnel who have repeated exposure to trace quantities of anesthetic gases. The ad hoc meeting of authorities in the fields of dentistry and anesthesiology, chaired by Dr. E. J. Driscoll of the Section on Anesthesiology of the National Institute of Dental Research, was called by the ADA in direct response to this potential problem.

In recent years, there have been references in scientific literature indicating that the presence of trace amounts of residual inhalation anesthetics in hospital operating rooms may have a deleterious effect on the health of operating room personnel. The purpose of this meeting was to examine the dental aspects of this problem, including the ramifications for dental personnel similarly exposed in dental operatories where inhalation anesthesia and analgesia are in frequent use.

It was emphasized throughout the meeting that the problem relates

primarily to long-term occupational exposure and not to dental patients whose exposure is with small trace amounts for very limited time periods.

The participants, including several key members of the original medical team working on the same problem, discussed all major aspects of the situation, including: the American Society of Anesthesiologists' co-operative study with the National Institute on Occupational Safety and Health (NIOSH); the need to further study dental offices for relative contamination; the overall possible effects on dental personnel of working in contaminated areas; and methods of monitoring and preventing such contamination.

After two days of deliberation, the group moved to inform the ADA Board of Trustees of the potential problems and named sub-groups to continue work in four major problem areas: information dissemination; survey of dental personnel; liaison with NIOSH; and instrumentation for monitoring and controlling the level of gases in dental operatories.

In memoriam

Harry E. Bulyea

It is with regret that the Canadian Dental Association announces the death of Harry Ernest Bulyea of Edmonton on February 5, 1976, at the age of 103.

Born in Central Cambridge, New Brunswick, Dr. Bulyea graduated from the Harvard School of Dental Medicine in 1897 and practised dentistry in St. John, New Brunswick, Saskatoon and Scott, Saskatchewan, and in Vernon, British Columbia. In 1913 he completed graduate studies in orthodontics at Northwestern University and opened a practice in Edmonton.

In 1920 Dr. Bulyea accepted an invitation from the University of Alberta to teach pre-clinical laboratory courses and a course in operative dentistry to the three dental students registered in the University's Faculty of Medicine. A four-year professional program in dentistry was established at the University in 1923 with Dr. Bulyea as its director and, three years later, the University of Alberta's School of Dentistry was formed under the direction of Harry Bulyea. He retired from this post in 1942.

In addition to being the organizer and director of Alberta's first school of dentistry, Dr. Bulyea was a past president of the New Brunswick Dental Society and the Edmonton and District Dental Society, professor emeritus at the University of Alberta and an honorary Fellow of the Royal College of Dentists of Canada. He was also an enthusiastic devotee of a wide range of interests not related to dentistry: photography, painting, mountain-climbing, jewelry-making, boat-building, skiing and ice skating.

In a special 1967 "Heritage" edition of the CDA Journal, an article on Dr. Bulyea concluded that he "has not only made a permanent niche for himself in the history of the dental profession; he has also, without neglecting his obligations to the profession, achieved distinction in several other fields as well. In so doing, he set an example that may be emulated but is unlikely to be surpassed."

DEATHS

Beland, Gustave. 75. Montreal. University of Montreal, 1925. 9-2-76.

Bonnell, Hugh Frederick. 51. St. John, N.B. McGill University, 1947. 9-2-76. Survived by Lois (wife); Fenwick (son); and Mrs. Wayne Burley (daughter).

Durant, W. Lorne. 77. Brockville, Ont. Royal College of Dental Surgeons of Ontario, 1920. 19-2-76. Survived by Della (wife); Mrs. Dorothy Perry and Mrs. Lois Town (daughters).

Edwards, Reginald William. 49. Belleville, Ont. University of Toronto, 1952. 6-2-76. Survived by Muriel (wife); Peter (son); and Elizabeth (daughter).

Ehlert, Rex Phillip. 56. Calgary. Uni-

versity of Alberta, 1950. 28-1-76. Survived by Jean (wife); Christopher (son); Mrs. Joan Edwards and Mrs. Jill Meeks (daughters).

Gale, Harry Arnold. 68. Winnipeg. University of Toronto, 1930. 10-2-76. Survived by Muriel (wife); Arnold and Mark (sons); and Melody (daughter).

MacNeill, Bruce Crawford. 81. Toronto. Royal College of Dental Surgeons of Ontario, 1925. 2-3-76. Survived by Dorothy (wife); Donald (son); and Mrs. Kathryn Cole (daughter).

Morrison, Reeve Wilson. 78. Winnipeg. Royal College of Dental Surgeons of Ontario, 1923. 12-1-76. Survived by Jean (wife), and Mrs. Shelagh Martin (daughter).

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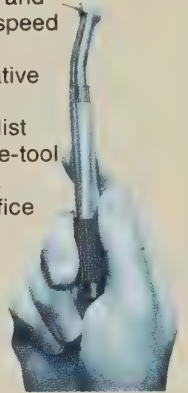
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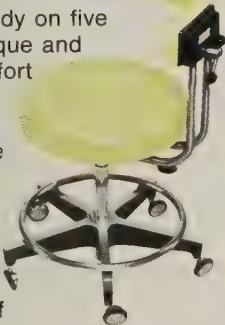
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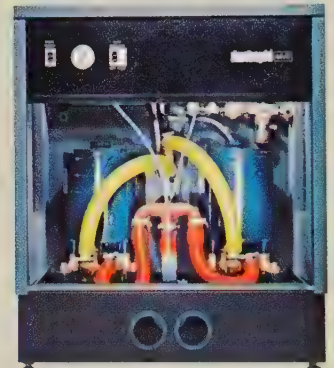


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LES DENTISTES DU MANITOBA CRITIQUENT LE PROGRAMME DE SOINS DENTAIRES ENVISAGE PAR LE GOUVERNEMENT

L'Association dentaire du Manitoba a récemment attaqué le programme de soins dentaires envisagé pour les enfants. Elle a accusé le gouvernement provincial de faire preuve d'une "honteuse duplicité" en ce qui concerne ses rapports avec l'Association. L'ADM souligne qu'elle ne s'oppose pas au concept d'un programme de soins dentaires pour les enfants de la province, mais qu'elle s'élève contre la méthode adoptée par le gouvernement pour mettre ce programme à exécution.

Au cours d'une conférence de presse organisée pour expliquer le point de vue de l'Association, le Dr E. G. Derrett, président de l'ADM a déclaré: "Le programme de soins dentaires pour les enfants, dans le cadre prévu par le gouvernement, coûtera trop cher, mènera à des abus personnels et risque de mettre en danger les moyens d'existence de certains dentistes ruraux. La province n'a accepté aucune des solutions proposées par l'Association au cours des négociations tenues ces dernières années".

Le Dr Derrett a expliqué que l'Association désire signer avec la province un accord-cadre qui permettrait aux dentistes à l'exercice privé de participer au programme sous un contrôle gouvernemental. L'ADM suggère également le transport des enfants à des cabinets dentaires situés dans les centres-villes, où des dentistes pourraient surveiller

les traitements plutôt que de dispenser des soins dentaires dans les écoles.

Le programme proposé par le gouvernement offrirait des services de base dans les écoles pour les enfants âgés de 6 à 12 ans. Ce serait une infirmière dentaire qui dispenserait les soins dentaires et adresserait les cas difficiles à un dentiste. Les dentistes seraient également chargés de faire les diagnostics, de recommander les traitements et d'interpréter les radiographies.

Vingt étudiantes du Manitoba sont en train d'obtenir une formation d'infirmière dentaire en Saskatchewan dans le cadre d'un programme de deux ans. De plus, huit hygiénistes du Manitoba suivent un programme d'un an.

Dans une lettre adressée à l'Association, le ministre provincial de la Santé, M. Larry Desjardins a rejeté l'idée d'un contrat entre le gouvernement et l'Association et déclare que la province n'avait pas l'intention de changer son programme, qu'il ferait appel aux services d'infirmières dentaires et offrirait ces services dans les écoles. Il a également déclaré que la province ne verserait pas d'honoraires pour l'examen initial et le schéma de traitement offert par un dentiste à un enfant, mais rémunérerait les dentistes sur une base journalière ou par séance.

Le Dr Derrett ajoute que la duplicité du gouvernement est évidente car tout en assurant l'Association qu'aucune

décision définitive ne serait prise en ce qui concerne le programme, la province inscrivait des étudiantes au programme d'infirmières dentaires en Saskatchewan, adoptait une législation globale s'appliquant aux auxiliaires dentaires et engageait un directeur pour le programme Denticare.

Selon le Dr Derrett, les dentistes en cabinet, à l'aide d'un plus grand nombre d'auxiliaires à formation étendue, offriraient à meilleur compte les services nécessaires. Il maintient que le programme de l'ADM coûterait moitié moins cher que celui du gouvernement au début et moins cher à exploiter à la longue.

L'ADM affirme qu'elle garantit une solution au problème causé par la répartition inégale des dentistes par la mise sur pied de postes externes qui exigeraient qu'avant d'obtenir leur permis d'exercer, les dentistes devraient exercer pendant un an dans les régions rurales du Manitoba. En plus de ces postes externes, l'Association propose de subventionner les installations ainsi que les rémunérations obtenues dans les régions rurales qui n'ont actuellement pas de service dentaire.

L'Association se propose également de payer des amendes qui pourraient s'élever à plusieurs milliers de dollars si elle omettait de faire face aux obligations stipulées dans son contrat avec le gouvernement.

L'ETAT POURRAIT S'IMMISCRER BIENTOT DANS LES HONORAIRES DE LA PROFESSION DENTAIRE

L'Office des professions, en vertu de l'article 12 (u) du Code des professions (Loi 250) doit "suggérer pour approbation au lieutenant-gouverneur en conseil, après consultation de la corporation et des organismes intéressés, un tarif d'honoraires professionnels pour les services rendus par les membres de cette corporation, lorsque le coût de ces services n'est pas fixé par convention collective ou déterminé par la loi."

L'Etat s'immiscera-t-il, autrement que par le fisc, dans les dernières enclaves de l'exercice privé au Québec, c'est-à-dire dans les bureaux des professionnels travaillant à leur propre compte? La question de la réglementation des tarifs exigés par ces professionnels a fait couler beaucoup d'encre depuis novembre dernier.

Suite à une étude confiée au Centre de recherche en développement économique de l'Université de Montréal, "La tarification professionnelle dans le contexte de la pratique privée", dont

les résultats ont été publiés en juin 1975, l'Office des professions a invité les organismes professionnels intéressés à lui soumettre des mémoires sur la question.

Ces mémoires seront discutés au cours d'audiences publiques qui ont débuté en février de cette année.

Les discussions entre l'Office des professions et les corporations promettent d'être pour le moins animées.

Les citoyens-consommateurs auxquels les règles du jeu échappent la plupart du temps sont pris à témoin au nom de leur protection.

Les mémoires des corporations et des organismes portent sur les avantages et les inconvénients, pour la protection du public, d'une réglementation des honoraires professionnels par rapport au jeu de la libre concurrence.

Cette réglementation des tarifs repose sur une typologie qui oscille entre divers genres de tarifs obligatoires et de tarifs indicatifs.

Un argument fréquemment invoqué par les professions repose sur la détérioration possible de la qualité des actes face à des tarifs fixés à l'avance, ce à quoi l'Office des professions oppose l'existence de comité de griefs et de discipline pour contrer cette possibilité.

L'ensemble des membres des corporations professionnelles (dentistes, avocats, notaires, etc.) risquent d'être particulièrement touchés par une réglementation des tarifs d'honoraires.

Ceux qui ont pensé "la réforme professionnelle" au Québec visaient une distribution des services mieux adaptés aux besoins du public, qui, par tradition, avait accepté le fait qu'une réputation et une compétence se monnaient.

Le gouvernement, au terme de toutes les discussions qui se déroulent sur la scène publique, devra trancher entre l'intervention ou la non-intervention de l'Etat dans le domaine de la tarification professionnelle.

Gérard de Montigny, DDS, MScD

Réunion de l'ADA pour étudier les conséquences dues à l'exposition aux gaz anesthésiques

Une assemblée spéciale de deux jours a été tenue en février au siège social de l'American Dental Association à Chicago, dans le but d'étudier les conséquences possibles dues à l'exposition répétée à des quantités infimes de gaz anesthésique. La réunion ad hoc de spécialistes reconnus des domaines de l'art dentaire et de l'anesthésiologie, présidée par le Dr E. J. Driscoll de la Section d'anesthésiologie de l'Institut national pour la recherche dentaire, a été organisée par l'ADA en réponse directe à ce problème éventuel.

Ces dernières années, on a pu lire dans la littérature scientifique certaines références indiquant que la présence de quantités infimes de résidus de gaz anesthésiques dans les salles d'opération des hôpitaux, peut avoir un effet néfaste sur la santé du personnel de ces salles. Le but de la réunion était d'étu-

dier les aspects dentaires du problème ainsi que les conséquences sur le personnel dentaire exposé à ces mêmes gaz lors d'opérations dentaires où l'on emploie fréquemment des gaz anesthésiques et analgésiques.

Le fait que ce problème se rapporte surtout aux professionnels qui sont exposés à ces gaz pendant longtemps et non aux patients dentaires qui ne sont exposés qu'à des quantités infimes pour des périodes très courtes, a été souligné pendant toute la durée de la réunion.

Les participants, qui comprenaient plusieurs membres importants de l'équipe médicale initiale collaborant à ces mêmes études, se sont entretenus de tous les principaux aspects de la situation, soit: l'étude coopérative de la Société des anesthésistes et de l'Institut national sur la sécurité professionnelle et de la santé (National Institute on Oc-

cupational Safety and Health) (NIOSH); la nécessité d'examiner les cabinets dentaires pour déterminer le niveau de contamination; les conséquences possibles sur le personnel dentaire qui travaille dans un milieu contaminé; et les mesures à prendre pour contrôler et éviter ce genre de contamination.

Après deux journées de débats, l'Assemblée a proposé de faire part au Conseil d'administration de ces problèmes éventuels et a nommé des sous-comités pour continuer l'étude de quatre principales questions, à savoir: la dissémination d'information; une enquête concernant le personnel dentaire; la liaison avec NIOSH; et les instruments destinés à surveiller et contrôler les niveaux de gaz lors des opérations dentaires.

CONGRES DE L'ADC DU 12 AU 15 SEPTEMBRE

Edmonton accueillera en 1976 le congrès de l'ADC ainsi que l'assemblée du Bureau des gouverneurs. Les délégués pourront vraiment goûter à la fameuse hospitalité de l'ouest. Ils pourront également jouir de la beauté et des attractions offertes par la cinquième région métropolitaine du Canada.

Les activités du congrès se concentreront dans trois hôtels importants situés en plein centre-ville. Les kiosques des exposants, l'assemblée du Bureau des gouverneurs et les réunions des divers comités de référence de l'ADC seront tous tenus à l'Hôtel Macdonald, le plus grand hôtel d'Edmonton et l'un des établissements les plus distingués qui combine avec beaucoup de charme, le service moderne et efficace au style "vieux continent" d'un archaïsme piquant. L'Hôtel Macdonald est directement relié au McCauley Plaza, centre d'achats souterrain de la ville.

Les cérémonies qui marqueront l'inauguration officielle du congrès auront lieu le dimanche 12 septembre au Château Lacombe, célèbre grâce à son

restaurant tournant "La Ronde", qui donne sur la pittoresque North Saskatchewan River ainsi que sur le centre-ville d'Edmonton. La Ronde, tout en étant un restaurant et un bar de tout premier ordre, offre également la perspective la plus spectaculaire de la ville.

Le programme scientifique du congrès, le bal du président et le déjeuner destiné à installer le nouvel exécutif, auront lieu à l'Hôtel Edmonton Plaza, le plus récent des hôtels de premier ordre de la ville.

Les délégués occuperont leurs moments de loisir en relevant le défi que présente l'exploration d'Edmonton. Ils trouveront sur les avenues, les plazas et dans les centres commerciaux, une multitude de boutiques intéressantes, tout en satisfaisant leur curiosité gastronomique par la fine cuisine originaire du monde entier.

Le congrès 1976 de l'ADC à Edmonton Un événement à ne pas manquer!

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 29 février 1976:

<i>Fonds avec garantie</i>	\$12.38;
<i>Fonds à revenu fixe</i>	\$16.57;
<i>Fonds d'actions ordinaires</i>	\$29.02.

L'avoir total (valeur marchande) du régime se montait à \$22,164,854.62.

Au cours du mois précédent, les transactions ont été les suivantes: achat, \$300,000 Ford Motor Credit Co. of Canada note, \$300,000 Provincial Bank of Canada note, \$70,000 Royal Trust GIR, \$200,000 Royal Trust GIR, 11,749 units Classified Fund Conventional Mortgage. Vente, \$8,500 Aquitaine Canada Ltd. note, 7 Bank of Nova Scotia rights, \$400,000 Banque Canadienne Nationale note, \$200 British Columbia Telephone Co. note, \$200,000 Royal Trust GIR, \$80,000 Royal Trust GIR.

Pour de plus amples renseignements, veuillez écrire à CDA-sponsored Pension and Insurance Plans, 14 Madison Ave., Toronto, Ont. M5R 2S1.

JOURNAL DE L'ASSOCIATION DENTAIRE CANADIENNE

RÉDACTEUR ADJOINT (FRANÇAIS)

Chargé des chroniques de nouvelles et scientifiques du journal rédigées en français. Les fonctions de ce poste comprennent la rédaction en français et en anglais des nouvelles concernant le Québec, la traduction des nouvelles et résumés scientifiques de langue anglaise, ainsi que la recherche d'articles scientifiques de langue française et leur adaptation aux normes et au format du Journal.

Les candidats doivent posséder un diplôme général ou spécialisé en art dentaire, une expérience des domaines du journalisme ou de rédaction ou une expertise personnelle de la rédaction pouvant s'appliquer au poste de rédacteur. La préférence sera accordée aux candidats ayant des contacts étroits avec la profession dentaire et les facultés d'art dentaire.

Les candidats intéressés sont invités à soumettre un curriculum vitae complet avant le 30 avril au:

Conseil Exécutif de l'ADC
234 rue St. George
Toronto, Ontario M5R 2P2

La société américaine de médecine légale honore un dentiste canadien

Le Bureau américain d'odontologie légale a récemment accordé au Dr R.B.J. Dorion de Montréal un diplôme d'accréditation. Le Dr Dorion est le premier canadien à se voir accorder cet honneur. Il a également été nommé au Conseil d'administration de ce même organisme.

Dr Dorion est le nouveau président de la section odontologie de la Société canadienne de la médecine légale (Society of Forensic Science). Les Dr D. E. Upton de Calgary et S. L. Kogan de London ont été respectivement élus vice-président et secrétaire-trésorier de l'exécutif.

Canadian fund for dental education
Fonds canadien pour l'enseignement dentaire
Annual report/rapport annuel 1975
le/fced





For the first time since 1970 this portion of the Fund's Annual Report has **not** been prepared and submitted by Mr. M. E. (Bud) Bower of Toronto, who retired voluntarily and with honour as Chairman of the Board of Trustees in 1975. Like his predecessor, Dr. James D. McLean of Halifax, Mr. Bower has been an exemplary Chairman, with the Fund showing steady and indeed massive growth during the fourteen years of their combined stewardships.

Previous Reports, (and this one in later sections), cite the sources of annual donations and their dispersal. The primary thrust of my remarks will be directed along other lines although I urge readers to examine in as much detail as possible, the figures presented elsewhere in this publication.

It is both trite and commonplace to state that we are living in times of change but certainly the cause and effect of change are becoming very significant to The Canadian Fund for Dental Education. Historically speaking, CFDE had its genesis in the Canadian Dental Association and the Association has been in a certain sense, our early and only home. Coincidentally though, the Fund has received consistent and magnificent support from those who supply and serve the dental profession and from other interested parties outside the profession itself. The Canadian Dental Association will be moving its Headquarters to Ottawa later in 1976 and the Trustees must soon decide whether CFDE should also move to another city, in order to preserve a desirable and longtime geographic proximity to its "parent". A possible disadvantage of this proposal is the Fund's removing itself completely from the largest centre of corporate giving.

Then too, the traditional relationship between the national association and the Fund has, of necessity, assumed a different status because as planned, CFDE is now the holder of a mortgage on the Association's new Ottawa building. Both the Trustees of the Fund and the Board of Governors of the Canadian Dental Association are anxious to preserve under these new conditions, the mutual benefits accruing from what has always been a pleasant and respected alliance.

To all those who have so generously supported the Fund in the past, I give assurance that in the altered circumstances of the present and of the future, the Trustees will strive to maintain their record of serving the best interests of dental education, of organized dentistry and of all Canadians across the land.

J. W. Neilson, *Chairman*
Board of Trustees

Pour la première fois depuis 1970, cette partie du rapport annuel sur le Fonds canadien n'a pas été rédigée, ni présentée par M. M. E. (Bud) Bower, de Toronto, qui s'est retiré de plein gré et avec distinction en 1975 de son poste de président du Conseil des Fiduciaires. Comme son prédécesseur, le Docteur James D. McLean, d'Halifax, M. Bower a été un président exemplaire assurant le progrès continu du Fonds canadien qui n'a cessé de croître durant les quatorze années d'administration de ces deux présidents.

Les rapports précédents (et celui qui suit) donnent la source des dons annuels et leur distribution. Mes observations ne seront pas sur cette même ligne de pensée, bien que j'encourage le lecteur à examiner les détails financiers dans une autre section de cette publication.

Il est inutile de vous rappeler que nous vivons dans une période de transition mais la cause et l'effet de ces changements sont de plus en plus importants au Fonds canadien pour l'enseignement dentaire. Historiquement parlant, l'origine du FCED est relié à l'Association dentaire canadienne et pour cette raison, l'Association est dans un sens notre premier et seul foyer. Par conséquent, le Fonds canadien a reçu un appui solide et généreux de tous ceux qui forment et servent la profession dentaire et aussi de ceux qui ne font pas partie de la profession mais qui s'y intéressent. Le siège social de l'Association dentaire canadienne sera transféré à Ottawa au cours de l'année 1976 et les Fiduciaires devront bientôt décider si le FCED doit aussi changer de ville afin de préserver cette longue et souhaitable proximité géographique avec ses "ascendants". Mais il y a quand même un désavantage dans ce projet car le Fonds canadien s'éloignerait complètement du centre le plus important de revenus d'affaires.

Mais encore là, le lien traditionnel qui existe entre l'Association et le Fonds canadien se présente sous un nouvel aspect car le FCED est maintenant détenteur d'une hypothèque sur le nouvel édifice de l'Association à Ottawa. Dans ces nouvelles conditions d'intérêts mutuels, les Fiduciaires du Fonds canadien et le Conseil des Gouverneurs de l'ADC désirent préserver cette alliance qui a toujours été agréable et des plus respectées.

A tous ceux qui ont si généreusement contribué au Fonds canadien, je veux assurer que dans les situations changeantes du présent et du futur, les Fiduciaires feront quand même tout en leur pouvoir pour maintenir leur réputation qui est de servir les meilleurs intérêts de l'enseignement dentaire, de la dentisterie et de tous les Canadiens.

J. W. Neilson, *président*
Conseil des Fiduciaires

annual report 1975



who gets the dollars you give to cfde?

Example: The young CFDE fellowship recipient who recently wrote the following lines:

It hardly seems possible that in five months I will be teaching full-time. The two years of my graduate program have just flown by. I am grateful to the CFDE for helping to make it possible. It is my intention to make regular contributions to the Fund. My wife and I feel that we would like to contribute indefinitely on a monthly basis starting in January 1977.

we've achieved new records

In 1975 the Fund's income was higher than ever before, and so was the measure of help it provided for dental education and research.

Perhaps the most encouraging of many exciting achievements was the substantial increase in gifts from the profession. Doctors gave \$43,816 or over 17% more than in the previous year. Important factors in this handsome increase were 150 **new** supporters and 151 gifts of \$100 or more. Hygienists also established a new record of support with gifts totalling \$897.

Professional support is the foundation on which the Fund builds to achieve its objectives. On this expanding base more help for dentistry is assured.

Business and industry again responded generously with contributions of \$54,370, up from the previous year by 8%.

Foundation support moved sharply ahead due to a Hospital for Sick Children Foundation research grant plus continuing help for CDA's accreditation program from the W. K. Kellogg Foundation.

Improved Capital Fund earnings increased investment income to \$38,972.

Operational income from all sources reached a new high of \$181,359, a 14% increase over 1974, our previous best.

Supplying urgently needed financial assistance for dental education and research is CFDE's only objective. It is particularly gratifying, therefore, that for the first time in its brief history the Fund provided over one hundred thousand dollars for this purpose in a single year. Total in 1975 was \$124,622, up from 1974 by 26%.

a promising new research project

A research project at the University of Toronto is aimed at providing clinical benefits in the treatment of congenital malformations and mandibular fractures. Work on the project started late in 1975 and is expected to continue over a three year period. The Hospital for Sick Children Foundation made a contribution of \$18,535 to finance the first year of study.

educating the public

Preventive dental care and adequate dental health standards are everyone's concern. In 1975 the Fund trustees stepped up assistance in this critical area by approving a \$5,000 grant to help launch CDA's Council on Information Services five year preventive program.

Funds were also provided for an educational preventive dentistry program at the University of Western Ontario.

quality of care

To a large degree the nation's standards of dental care depend on the quality of the professionals who instruct our incoming practitioners.

Ensuring that our dental faculties are adequately staffed with highly skilled instructors, has always been a prime objective of the Fund. Assistance in this area reached a record level of \$65,810 in 1975.

CFDE teacher training fellowships are exchanged for teaching commitments, and in rare instances where the commitment is not fulfilled, the recipient refunds the full amount of the award.



projects already approved for funding in 1976

<i>Title & Purpose</i>	<i>Sponsoring Agency</i>
Teaching Conference on Practice Management Improved Teaching Techniques	Canadian Dental Association
Workshop Conference Future Considerations for Dental Assistant Educators	Canadian Dental Nurses & Assistants Association
9th Biennial Conference on Dental Research and Education Exchange of Information on Current Research Projects	Association of Canadian Faculties of Dentistry

projets dont les subventions ont déjà été approuvées pour 1976

<i>Titre et objet</i>	<i>Organisme parrain</i>
Conférence d'enseignement sur l'administration de la pratique Techniques améliorées d'enseignement	L'Association dentaire canadienne
Conférence atelier Considérations futures concernant les assistants enseignants	L'Association canadienne des infirmières et des assistantes dentaires
9e Conférence biennale sur la recherche et l'enseignement dentaires Echanges de renseignements sur les projets de recherche en cours	L'Association des facultés dentaires du Canada

Report annuel 1975

Qu'a l'argent que vous versez au FCED?

Par exemple, voici le cas d'un jeune boursier du FCED qui écrivait récemment:

"Il semble à peine possible de constater que, dans cinq mois, je serai déjà engagé à temps complet dans le domaine de l'enseignement. Les deux années de mon programme d'études auront passé sans histoire. L'argent exprime toute ma reconnaissance au FCED d'avoir permis sa réalisation. J'ai l'intention de contribuer régulièrement à soutenir le Fonds. Mon épouse et moi nous y contribuerons indéfiniment, chaque mois, à compter de janvier 1977."

Comment avons établi de nouveaux records

En 1975, le revenu du Fonds a atteint un sommet jamais vu auparavant. L'envergure de l'assistance apportée à l'enseignement dentaire et à la recherche s'est accrue dans une large mesure.

Parmi les réalisations les plus marquantes, soulignons l'augmentation substantielle de dons provenant des membres de la profession. Les docteurs ont versé \$43,816, ce qui représente plus de 17% d'augmentation sur les contributions de l'année précédente. Les causes principales de ce généreux accroissement sont attribuables à l'ajout de 150 nouveaux souscripteurs et à la réception de 150 dons de \$100 et plus. De plus, les hygiénistes ont établi un nouveau record avec des dons atteignant

la contribution des membres de la profession constitue la base sur laquelle le Fonds établit ses objectifs.

Par ailleurs, les domaines des affaires et de l'industrie ont répondu généreusement en versant des contributions équivalentes à \$54,370, c'est-à-dire 8% de plus que celles de l'année précédente.

L'appui venant des fondations a connu un progrès remarquable grâce à l'apport d'une subvention à la recherche accordée par la Fondation de l'Hôpital pour les enfants malades, et, d'autre part, par le maintien de l'assistance au programme d'agrément de l'ADC provenant de la Fondation W. K. Kellogg.

L'augmentation des gains du fonds de capital a accru le revenu de placements de \$38,972.

Les revenus d'exploitations de toutes provenances ont atteint un nouveau sommet, s'élevant à \$181,359, une augmentation de 14% sur ceux de 1974, notre précédent record.

L'unique objectif du FCED consiste à fournir l'assistance financière requise de toute urgence pour subvenir aux besoins de l'enseignement et de la recherche dentaires. En conséquence, il apparaît particulièrement réconfortant de constater que pour la première fois de sa brève

histoire, le Fonds a pourvu au delà de cent mille dollars à cette fin en une seule année. En 1975, il fut possible d'affecter \$124,622 à cet objectif, c'est-à-dire 26% de plus qu'en 1974.

un nouveau projet rempli de promesses

A l'Université de Toronto, un projet de recherche se propose d'apporter l'avantage des ressources cliniques au bénéfice du traitement des malformations congénitales et des fractures mandibulaires. Les travaux relatifs au projet ont débuté vers la fin de 1975 et ils se poursuivront durant les trois années subséquentes. La première année de ces travaux est financée par une subvention de \$18,535 versée par la Fondation de l'Hôpital pour les enfants malades.

L'éducation du public

Chaque individu se préoccupe de l'existence de soins dentaires préventifs et de normes convenables de santé dentaire. Aussi, les fiduciaires du Fonds ont voulu accroître l'assistance accordée à ce domaine critique en versant une subvention de \$5,000 pour appuyer l'action du programme préventif de cinq années mis en oeuvre par le Conseil des Services d'information de l'ADC.

Des fonds ont aussi été versés pour financer un programme d'enseignement de dentisterie préventive à l'Université de Western Ontario.

la qualité des soins

Les normes des soins dentaires distribués à la population dépendent, dans une large mesure, de la valeur même des représentants de la profession dentaire chargés de la formation des futurs praticiens.

Les responsables du Fonds ont toujours considéré comme objectif premier les mesures permettant de fournir à nos facultés dentaires le nombre requis de personnel enseignant de haute compétence qu'elles réclament. Dans ce domaine, l'assistance a atteint une subvention record de \$65,810 en 1975.

Les bourses d'études accordées par le FCED sont consenties à condition que le boursier s'engage à se consacrer à l'enseignement. Dans les rares circonstances où le bénéficiaire n'a pas rempli ses engagements, ce dernier rembourse tous les versements reçus.

1975 financial highlights

Full details regarding CFDE's programs and projects as well as its financial operations are available on request.

For more information and a copy of the auditor's report write to:

Chairman of the Board of Trustees
Canadian Fund for Dental Education
234 St. George Street
Toronto, Ontario M5R 2P2

1975 faits financiers marquants

En plus de l'exercice financier, toutes les particularités relatives aux programmes et aux projets du FCED seront aussi fournies sur demande.

Pour de plus amples renseignements et une copie du rapport du vérificateur comptable s'adresser à :

Monsieur le président du Conseil de fiducie
Fonds canadien pour l'enseignement dentaire
234 rue St-George
Toronto, Ontario M5R 2P2

sources of support / sources des dons income 1975 / revenu 1975

Business and Industry Commerce et industrie	\$ 54,370	29%
Dental Profession Profession dentaire	\$ 44,713	24%
Investment and Sundry Income Revenus de placements et de sources diverses	\$ 38,972	20%
Foundations Fondations	\$ 30,428	16%
Canadian Dental Association and Other Dental Organizations L'Association dentaire canadienne et autres associations dentaires	\$ 12,876	7%
OPERATIONAL INCOME / REVENUS D'EXPLOITATION	\$181,359	96%
Payment of Pledges and Gifts to Capital Fund Versements des gages et dons au fonds de capital	\$ 7,270	4%
TOTAL INCOME / REVENU TOTAL	\$188,629	100%

1975 operating expenses vs. total income

1975 frais d'exploitation au regard du revenu total

Management and Fund Raising Administration et campagne de souscription	\$ 43,615	23%
Program Services Services relatifs aux programmes	\$ 11,362	6%
TOTAL	\$ 54,977	29%

ow your contributions helped advance dentistry ici comment vos contributions ont assisté a l'avancement e la dentisterie

975 awards and investments

975 subventions et placements

Teacher Training Fellowships (Dentists and Dental Hygienists) cours de formation en enseignement (Dentistes et Hygiénistes dentaires)	\$ 65,810	49%
Graduate and Undergraduate Accreditation Surveys enquêtes relatives à l'agrément des diplômés et des sous-diplômés	\$ 13,807	11%
Grants to Dental Schools subventions aux écoles dentaires	\$ 12,500	9%
Grants to Other Dental Organizations and Sundry subventions aux autres organismes dentaires et subventions diverses	\$ 11,225	8%
Student Table Clinics and Conferences conférences et cliniques de tables étudiantes	\$ 11,114	8%
Research Project – University of Toronto projet de recherche – Université de Toronto	\$ 5,166	4%
ADA's Five Year Preventive Dentistry Program programme quinquennal en dentisterie préventive de l'ADC	\$ 5,000	4%
	\$124,622	93%
Invested in Income Producing Securities placements dans des valeurs de revenu	\$ 9,030	7%
TOTAL	\$133,652	100%

efde assistance for dental education and research

contribution du fced à l'enseignement et à la recherche dentaires

71		\$ 75,692
72		84,127
73		76,812
74		99,037
75		124,622
76		\$152,000 (PROJECTED/PROJETE)

183

1975 HONOUR ROLL OF CONTRIBUTORS FROM DENTAL ORGANIZATIONS, BUSINESS AND INDUSTRY

The Canadian Fund for Dental Education wishes to pay tribute to the following organizations which contributed \$100 or more to the Fund in 1975. Most of those listed have contributed annually to CFDE for several years and their continuing support is deeply appreciated. Those organizations preceded by an asterisk (*) have supported CFDE's efforts in behalf of dental education and dental care for ten years or more.

Although individual names are not listed, the Fund also wishes to express grateful appreciation for the many smaller gifts received from various organizations.

TABLEAU D'HONNEUR 1975 DES DONATEURS EN PROVENANCE DES ORGANISMES DENTAIRES, DES MAISONS D'AFFAIRES ET DES INDUSTRIES

Les responsables du Fonds canadien pour l'enseignement dentaire désirent rendre hommage aux organismes suivants qui ont contribué \$100 ou plus au Fonds en 1975. La plupart des donateurs inscrits versent une contribution annuelle au FCED depuis plusieurs années, et leur appui soutenu est vivement apprécié. Les organismes précédés d'un astérisque (*) appuient les efforts du FCED au bénéfice de l'enseignement dentaire et des soins dentaires depuis dix années ou plus.

Bien que les noms individuels ne soient pas cités, les responsables du Fonds désirent exprimer leur appréciation reconnaissante pour les nombreux dons plus modestes provenant de divers organismes.

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1975 HONOUR ROLL OF INDIVIDUAL CONTRIBUTORS

The CFDE trustees wish to pay tribute to the following individuals who contributed to the Fund in 1975.

(*) denotes an Honour Member – one who gave \$100 or more.

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Les fiduciaires du FCED désirent rendre hommage aux personnes suivantes qui ont contribué au Fonds en 1975.

(*) indique un membre d'honneur, c'est-à-dire une personne qui a versé \$100 ou plus.

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RETHINKING PRACTICE MANAGEMENT TODAY

- Do dental students need practice management training?
- What do the statistics reveal?
- What are the dental schools teaching?

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The nature of the practice management problem

Angus E. Reid, Ph.D.
Winnipeg

We live in a time of radical upheaval and change. How many times have we heard this observation raised at meetings or conferences? I shudder to think of the number of articles and editorials I have read in the health area in general and in dentistry in particular documenting the cataclysmic alterations for which we must all prepare. Typical of this sentiment is the following statement which I came across the other day while looking over some material on group practice in dentistry.

"The future of dentistry whether under state control or under private practice auspices, will involve the group practice idea to an extent little thought of in the past. The advantages of consultation, of division of work, of reduction of overhead, the ease with which holidays can be arranged, the problem of the care of one's practice

during sickness, all point the way to this plan of practice in the near future."

I felt rather optimistic on reading this, since group practice does seem to make so much sense. Perhaps, I thought, the author was right, perhaps we're really on the verge of great alterations in the organization of dental practice. This optimism quickly faded when I realized this statement was made by the late Dr. M. H. Garvin at the founding conference of the Saskatchewan Dental Society in 1948. One wonders if anything really changes, including our words about change.

Computer data base

I will base much of my presentation on the data obtained in a recently completed study of dental education in Canada.* This study involved adminis-

tering questionnaires to all four years of dental students enrolled in the nine Canadian dental schools in operation in 1970-71. Eighty-three per cent of the students completed these questionnaires, and a smaller sample were interviewed in order to determine the reasons for entering dentistry, the kind of exposure they were receiving in areas such as practice management and dental auxiliary utilization, their practice plans and career expectations and their attitudes to a number of issues in dentistry.

That same year, 65 per cent of the dental school faculty members com-

*The data base is drawn from a recent five-year study of Canadian dental education initiated by the Association of Canadian Faculties of Dentistry. Support for the study was provided by the Government of Canada through a public health research grant (606-7-231), National Health grants (607-2-011 and 607-1017-21).

pleted a parallel questionnaire containing many similar items.

In 1974, three years after the students had completed the first questionnaires, they were re-surveyed. The group which originally had been in first year, was then in fourth year, thus providing us with longitudinal information on the nature of changes which students undergo in their dental school experience. The other three groups of students (those who were in second, third, and fourth years) were in practice for up to three years by 1974, thus giving us an indication of the kinds of changes which students undergo after they enter practice. It is an analysis of these recent graduates on which I will base much of my discussion today.

The questionnaires on recent graduates contained many items which were the same as those included in the student questionnaire which was completed in 1971. It also contained extensive information about the practice characteristics of recent graduates and their attitudes towards the dental education which they had received.

These questionnaires were mailed to recent graduates in the fall of 1974. To our surprise, almost two-thirds of those questionnaires were completed and returned. Since many of the questions dealt with the graduates' view of necessary changes in dental education, this high response rate indicated a very keen interest by these dentists in the subject. The second point which surprised me was the extent to which most of the respondents had written long passages outlining various concerns. Usually, such open-ended questions draw responses from only 20 or 30 per cent of the sample, but in our case over 60 per cent chose to record their feelings.

It was in reading these written comments that I got the first hint that graduates were troubled about their lack of training in practice management. Indeed, it was this topic which was brought up most often, and the most vehemently by the graduates. After the information had been coded and subjected to more thorough analysis, the original hints received in looking over questionnaires were confirmed — the major problems

which students appeared to be facing did not concern their technical ability as dentists, but rather their skills in coordinating what was becoming an increasingly complex organizational system in which dental care is delivered.

Practice management stereotypes

Before going on and reviewing some of the study's more detailed findings, it seems appropriate to consider exactly what we mean by practice management. This is necessary because of the wide variety of images and stereotypes it conjures up.

In preparing for this presentation I asked a number of dentists of my acquaintance to outline what the subject of practice management meant to them. To my surprise many were ambivalent and even hostile to this topic.

Most associated practice management with gimmicks or fads in dentistry. One dentist I spoke with used the example of a machine which blew oxygen into the gums and used by a number of Canadian dentists in the late 1940's as an example of practice management. This individual and others I spoke with stressed the need for caution in approaching this subject since it was in the interest of crafty dental supply companies to force all sorts of otherwise useless gadgets on the dentists in the name of practice management.

The second stereotype which I encountered might be termed "practice management and the denial of professional values." In this context, practice management is viewed as involving gimmicks not only at the level of actual tools, but at the level of practice philosophy. The so-called "preventive movement" spear-headed by Barkley was given as an example of this type of innovation. I was reminded of the traditional Anglican or Catholic who became upset or confused when drums and guitars were inserted into the church service. At one level they realize the pay-off of the change in the philosophy (church attendance is up) yet they feel that their traditional religious values are being compromised.

A third stereotype of practice management related to practice management and the loss of autonomy. Even

for those who could see the positive benefit of new innovations, there appeared to be some anxiety over the loss of independence which seemed to be concomitant with practice management imperatives. The thought of having to be overly concerned with the rationalization of a practice or the application of management techniques is viewed as an irritant to the real job of the dentist, namely treating the patient.

These concerns about the legitimacy of practice management left me wondering how practice management could ever make inroads into the school curriculum. It wasn't until I spent an afternoon in the archives of the dental library that I began to realize why dentists questioned the legitimacy of this area.

Scanning textbooks on practice management published from the turn of the century until the present day, I got the distinct impression that this subject was one which traditionally could only be mentioned with great discretion, preferably in hushed tones in the corner of some mid-Victorian lounge. If anyone else was to be brought in on such a discussion, a respectable and discrete banker would be the first choice. The issues raised in such a discussion would likely include the following: how to maintain a proper professional image through the choice of office decor, how to raise the subject of fees with clients, how the dental assistant should answer the phone. One gets a very strong feeling that in its early days, and I dare say until the early 1960's, the profession was very timid about raising issues which could be viewed as a play toward increasing dental incomes. As Harry Garvin pointed out in the address to the Saskatchewan conference, which I mentioned earlier, there was only one valid form of practice management, only one legitimate way of increasing incomes and that was through hard and skillful work. The notion of applying such skills to the organization of work appears to have been as distasteful to the traditional professional as innovations in industrialization were to the artisans of a century before. One could after all earn a decent living under present forms of practice, why change anything?

These notions of the need for discretion and respectability run through early treatments of practice management. How odd recent texts such as Kilpatrick's "Work Simplification and Dental Practice" must seem to the authors of these earlier works. Life in the dental office can no longer be as simple as it once was. Now the efficient dentist must be concerned with color-coded tray systems, team building with expanded duty auxiliaries, patient psychology, the timing of patient flows, the maintenance of more and more sophisticated machinery and the development of proper billing techniques.

In attempting to understand this recent shift in the currency given these new aspects of practice management, I have the image of a change from an inward-looking dental office where the central issues of professional image and how to charge fees reflect a certain awkwardness in the dentist's view of himself to a more extroverted, aggressive profession concerned with using all the tools available to maximize the payoff to the dentist and hopefully the patient. It is within this latter conception that one can aptly define practice management as that segment of dentistry concerned with the problems of co-ordinating and organizing the various inputs into the dental office to maximize the benefits for both clients and therapists. These inputs include the patient, the dentist and his or her staff, materials, economic resources, capital and information.

The co-ordination system is given shape; by training procedures, supervisory skills, routines for recalling patients, mechanism for ensuring that bills are paid and supplies reordered, processes for maintaining adequate levels of staff morale and the like. All of these represent sub issues of the more general organizational problem which is at the heart of practice management.

Before discussing methods for ensuring that dentists now in practice as well as future generations of practitioners can utilize the various organizational tools at their disposal, it might be

worthwhile to first consider the abilities of current graduates in this area.

Earlier I indicated that practice management was the major area on which graduates chose to comment in completing the questionnaires. Their concerns are perhaps most dramatically reflected when we compared this area with other subjects in the dental curriculum. As Tables 1 and 2 indicate, it is practice management which was viewed by the majority of students as the major area of weakness in their dental training. Compared with the clinical subjects, training in areas such as practice management and issues related to it such as auxiliary utilization and patient psychology seem to be wholly inadequate. If this assessment by recent graduates of their ability to organize and manage a dental practice is correct, there is cause for some concern in Canadian dentistry. Important advances have been made in recent years in both dental technology and dental auxiliaries. They can be of little use if graduates are not sensitive to organizational arrangements which best facilitate their use.

The problems of new graduates with practice management can also be seen through assessing their actual practice characteristics and productivity after graduation. In this regard it is instructive to assess the early careers of dental graduates along three dimensions: the type of practice they enter, their use of auxiliaries and their productivity.

Practice characteristics

Analysis of the three cohorts for whom data are available reveals that associate practice is increasingly the choice of Canadian dental graduates. Forty-four per cent of those graduating in 1971 went into this form of practice. For the 1972 class, this increased to 52 per cent and for the class of 1973 — 56 per cent. For those entering this form of practice, approximately half joined a dentist already in practice, 20 per cent entered partnership on a percentage basis and 30 per cent joined one or more of their fellow graduates.

Solo practice is the second most popular form of practice for graduates with approximately 20 per cent of all

students each year choosing this alternative (a slight decrease in the percentage choosing solo practice is evident however from 1971-73). For those entering a solo career, the vast majority (85 per cent) established their own practice. The remaining 15 per cent report that they purchased an existing practice.

Those students who did not enter private practice, on either a solo or associate basis, worked for government or went into specialty training. The former group comprises about 17 per cent of our respondents and remaining seven per cent continued with their education. For those who entered government, only 25 per cent are involved with the Armed Forces. The remainder either worked for departments of public health or for various branches of government.

Considerable changes in the type of practice occur during the first three years after graduation. An analysis of our findings reveals that 37 per cent of dental graduates switched to a different practice after their first year out of dental school. By their second year, this increased to 50 per cent and by their third year, 58 per cent of the graduates had switched to a different practice. Thus, for the majority of dental graduates, first practice experiences are relatively transitory.

Our findings reveal that most of the changes which occur favor solo practice at the expense of associateship practice and government employment. Indeed for the dental class which graduated in 1971, the number of graduates involved in solo practice doubled by the time they were three years out in practice. This is matched by a considerable drop in the numbers employed by government and a less considerable but nevertheless significant decrease in those employed in associate practice. The one group which remains relatively stable after graduation are those who have gone on to postgraduate and specialty training.

A considerable amount has been written in the dental literature and elsewhere, on the increasing importance of various forms of group practice. It is the view of many that only in

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such practices can recent advances, in areas such as the use of auxiliaries, be fully implemented. Our findings on the recent graduates suggest that no large scale movement toward various forms of group practice is imminent. Rather, the recent graduate, like his colleagues already in practice, appears to prefer the autonomy and independence which exist in the solo practice setting.

The use of dental auxiliaries by recent dental graduates in Canada

Almost all of these recent graduates utilize dental assistants, while considerably fewer employ dental hygienists. Specifically, 68 per cent of the respondents indicated that they use one full-time dental assistant; 20 per cent use two or more full-time assistants, and 12 per cent use assistants on a part-time basis. Hygienists on the other hand are used considerably less, with 80 per cent of the respondents indicating neither full- nor part-time hygienists employed.

The duties which dental assistants perform in these dental offices vary considerably. Some offices of recent graduates use dental assistants for a wide variety of tasks, including radiography, office management, laboratory procedures, patient relations, chairside assisting and housekeeping. These represent, however, only about 20 per cent of the total. The only areas for which dental assistants appear to be almost universally utilized are chairside assisting and housekeeping.

Regarding what types of chairside duties are performed by the dental assistant, the data indicate that recent graduates differ considerably in the scope of operations they allow their assistants to perform. The only area for which virtually all respondents noted the use of dental assistants was the mixings of amalgams and other bases. Conversely, almost all dentists indicated they did not use dental assistants to cement facings. For the remainder of chairside duties, dental graduates vary considerably.

This variation in the use of chairside dental assistants may be explained by a number of factors, including the background of the graduates, the type of practice in which they are engaged and

Recent graduates assessment of emphasis on various subject areas

Table 1

Subject area	Level of Assessment				
	Too much emphasis	About right	Not enough emphasis	N/A	
Anaesthesia	1	49	48	2	(= 100%)
Clinical operative dentistry	6	76	15	3	"
Endodontics	8	54	35	3	"
Clinical crown and bridge	2	47	48	3	"
Clinical periodontics	9	53	34	2	"
Clinical oral surgery	1	45	52	2	"
Clinical paedodontics	5	75	17	3	"
Clinical orthodontics	7	50	41	2	"
Hospital experience	9	43	46	2	"
Dental materials	25	61	10	4	"
Gold foil	55	35	7	3	"
Ethics	7	71	20	2	"
Practice management	0	13	85	2	"
Occlusion	9	57	32	2	"
Oral diagnosis	2	41	54	2	"
Use of auxiliaries	1	34	64	1	"
Radiology	3	77	17	3	"
Psychology in dentistry	5	40	53	2	"
Dental research methods	17	57	21	5	"
Preventive dentistry and public health	5	60	33	2	"

N=674

Recent graduates perception of the adequacy of their training in selected areas

Table 2

Subject areas	Very good	Fairly good	Perception of training			
			Poor	Very poor	N/A	
	%	%	%	%	%	(= 100%)
Appreciate research	7	38	39	15	1	"
Utilize research data	3	26	52	17	2	"
Perform hospital services	5	32	42	20	1	"
Manage a dental practice	0	9	42	34	15	"
Utilize an assistant	4	26	47	22	1	"
Write drug prescriptions	24	53	17	5	1	"
Make a thorough examination	49	45	4	1	1	"
Diagnose oral conditions	29	57	12	1	1	"
Plan treatment	30	53	12	4	1	"
Utilize hygienist	3	17	41	38	1	"
Utilize lab technician	8	44	32	15	1	"
Write work authorization for lab	21	55	18	5	1	"
Understand ethical responsibilities	22	62	12	3	1	"
Communication with patients	15	53	26	5	1	"

N=674

the area of the country where their practice is located. One possible explanation which was systematically examined in this study was the effect of the various dental schools. Analysis of this factor revealed relatively great differences in the use of dental assistants by graduates from different schools, even where they practise in the same region.

The full utilization of chairside dental assistants has yet to be realized by recent graduates of Canadian dental schools. While part of this is due to variations in statutes governing the types of duties which assistants may perform, our study indicates that it is also due to differences in the curricula of Canadian dental schools. This would seem to suggest that dental education must play an important role if the productivity of Canadian dentists is to be maximized.

Change in productivity

It is the productivity of the dental graduate which perhaps more than any other indicator, reveals the extent to which practices are organized efficiently. Questions included in this part of the questionnaire dealt with the number of patients seen by the dentist, the average length of sitting, number of hours worked per week and the waiting time for various types of routine and emergency patients.

It should be noted that about 25 per cent of the respondents were either unwilling or unable to answer some items in this part of the questionnaire. While some of these may have been reluctant to give this type of information, it is my own feeling as well as the opinion of a number of dentists with whom I have consulted, that the majority of this group simply didn't know the figures for their practices. This is supported by the fact that for certain items, which all working dentists know, such as average length of appointment, almost 100 per cent chose to respond. If such a high percentage do not know elementary statistics about their practice, it indicates there is a good deal to be done in practice management training.

For those who did respond, the data reveal, as expected, that graduates in-

crease their productivity considerably during the first year of practice. For the most recently graduated class, only 10 per cent indicated that they treated over 1,500 patients or more per year. For those who had been in practice three years this increased to 30 per cent. Significantly however, even by third year almost half the dentists saw fewer than 800 patients per year!

For those who increased their productivity, the reason appears to be an improvement in operating speed and efficiency. There was no evidence to suggest that it reflected a shortage of patients for those who had just graduated. Nor is it explained by working hours since the more senior dentists are, if anything, working fewer hours than their junior colleagues. Since, as I pointed out earlier, auxiliaries are not used to an increasing extent by those who have been in practice for longer periods of time, it is unlikely that this is a source of productivity increase. Changes in the early productivity seem to relate to the dental school however. Forty per cent of graduates from one school treat over 1,500 patients per year, while only 10 per cent of the graduates of two schools achieve this level of productivity.

The above examination of both the attitudes of recent graduates and their practice characteristics underscores the need for more training in this area.

Educational models

I would now like to discuss a number of alternative models for educating dental students and recent graduates in the area of practice management. I include recent graduates in this discussion because I am convinced that any training system to work effectively must not only provide a basic theoretical understanding of practice management but also must furnish mechanisms for the student after graduation to establish a well-organized, integrated practice. I think it is necessary when educating students in practice management to include undergraduate and continuing education components as well as advisory services which graduates can call on for more specific advice. I will deal

with each of these components separately.

1. Undergraduate teaching of practice management

As paradoxical as this may sound, the dental school is in many senses the worst of all environments in which to train students in practice management. Dental school clinics rarely give students an opportunity to become involved in co-ordinating the various resources at their disposal. Instead, the organization of the school clinic represents a "given" to which students must adjust their behavior.

In the clinic, the emphasis is as it should perhaps be on the development of specific manual and technical skills. An attempt to alter the emphasis placed on the organization of the dental practice would likely upset many clinical instructors and confuse students.

During the first years of dental education there are equally great obstacles to implementing an efficient practice management program. Students are steeped in basic science material which requires most of their effort. They have problems even imagining themselves as dentists and likely view many issues in practice management as foreign and irrelevant.

With these constraints, the question arises as to what can be meaningfully done in the context of undergraduate dental education. There are, I think, at least three areas in which useful progress can be made.

(1) Pre-dental requirements — if students are to be sensitive to issues in practice management, it is important that steps be taken to require some training in the social and/or administrative sciences before entering dental school. Requirements at this level would hopefully provide students with a general background in issues of organization and co-ordination and hopefully increase their receptivity to and comprehension of issues raised in the dental school.

(2) The pre-clinical years — schools should endeavor to mount a formal course in practice management during this period. This course should include at least 40 contact hours and introduce the student to various models of prac-

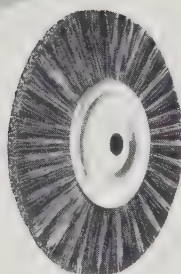
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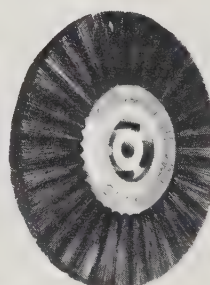
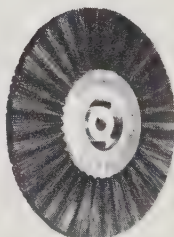
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tice management and the issues and dilemmas which each must confront. It is imperative that such a course be considered a regular course with an established text and readings, term papers, an examination requirement and the like. This is necessary since it will be very difficult at this early stage to interest students in this area. It is important that they come away with some basic understanding of issues in practice management. It is also important, in such a course, that as few instructors as possible be utilized as this often results in a fragmentation of the subject matter. Ideally, such a course would be taught by a full-time staff member with clinical skills and some training in the behavioral sciences.

(3) The clinical years — it is my belief that the most effective way of training students in practice management, especially in the fourth year, is to provide a clinical setting which is as close as possible to the kind of setting the students are likely to encounter in practice. Teams of students should be given the highest level of autonomy possible in organizing their tasks. While there are, as mentioned earlier, numerous impediments to this proposal, it would be a very useful learning experience. I have not been convinced of the merits of short term field trips for students as an alternative to first-hand experience in organizing a practice. Field trips may have a place in areas such as public health but are of only limited usefulness in learning how to organize a practice. An important spin-off of allowing students more independence in organizing clinical duties is that it would foster a sense of team work which would hopefully make it easier for graduates to work together once in practice.

An alternative to the school clinic experience would be a type of internship program in which students would be assigned for a period of weeks to a local dental office. For the larger schools this plan creates enormous logistical problems which would be almost insurmountable. Even where such a plan could be implemented the results would be questionable. From those dentists who have established

well-organized practices the student would gain little experience in how various decisions were made and could only ask questions after the fact. Dentists whose practices were not well-organized would not be appropriate for obvious reasons.

The point I am attempting to make is that at some time before graduation a mechanism must be found to involve the students in the experience of practice, with some expert guidance to assist them in making decisions. It is important that they not simply be exposed to one or two models of practice management since the process and mechanism for organizing a practice cannot be simply transferred in a mechanical way from one setting to another. What students require is a sense of organization as opposed to a series of static models. In this regard it is advisable to explore the possibility of practice simulation exercises or games to augment direct clinical experiences. Simulation is an excellent way of forcing students to cope with various changes in resources and technology and provides them with mechanisms for coping with future changes.

2. Continuing Education

It is imperative that any plan for teaching practice management include a strong continuing education component. It is only after the graduate has been in practice a year or so and built up the necessary confidence in his clinical skills, that we can be fairly sure of a receptive audience for courses in practice management. They have by this time recovered from the shock of changing their status from student to dentist, and will, as our data suggest, not yet have established their own practice.

The emphasis on continuing education courses at this level should be relatively specific, reflecting decisions the recent graduate is likely to have to make. Practice location, dental equipment and materials, the training of auxiliaries, billing and accounting procedures and other matters at this level should be stressed. Opportunities should be provided for at least one intensive course per year covering a

number of weeks in which all of this material may be presented. During the year, local societies may continue, as many do now, to offer some specialized courses.

3. The development of a national advisory and information service

In addition to the above educational components, I would strongly urge you to consider the development of a national advisory and information service under the auspices of the CDA. Such a component would provide specialized advice and practice evaluation services on a fee-for-service basis to practising dentists.

It has never ceased to amaze me that dentists will pay thousands of dollars for dental equipment but are reluctant to pay for the specialized knowledge which can put such equipment to its most efficient use. Just as dentists are now realizing that patients should be willing to pay for education and information in oral hygiene, so also should we begin to view knowledge in areas such as practice management as a necessary cost in building and maintaining a practice. Peter Drucker's argument that knowledge is capital is especially appropriate in this context.

Such an information and advisory service would best be established on a non-profit basis with costs paid by users and perhaps an annual subsidy from the Canadian Dental Association. It should include a research division and attempt to translate research and information into advice for practitioners. Matters such as good practice locations, arrangements for group equipment, purchases, a clearing house for available dental assistants could all be auxiliary functions.

Conclusion

There can be no doubt that alterations are necessary in the nature and scope of practice management teaching, both within and beyond the dental curriculum. Recent graduates have strongly expressed the need for more emphasis in this area — a need which is reflected in their own practice characteristics.

Continued on page 200



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THE CHANGING EMPHASIS ON PRACTICE ADMINISTRATION

**William J. Fleming, BSc, DDS,
MScD, FRCD(C)**

**Roger L. Ellis, DDS, DDPH, MSc.
Toronto**

The old order in dentistry is coming under increasing pressure to change. Present-day dental graduates are entering a profession that is changing its concepts of dental practice, management, and delivery of service. The stereotyped concept of one dentist, one office, own-your-own equipment is giving way to the concept of partnerships and corporations with business managers and leased equipment. The large group practice with several dentists, dental specialists, and dental auxiliaries housed under the same roof is also becoming more common.

Unfortunately these new approaches to dental practice are nearly a decade ahead of the overall framework of training in most dental schools in North America. There are, of course, many reasons for this lag. Foremost is the preoccupation with developing dental skills and techniques in students, accompanied by the attitude that the intricacies of management and organization of a dental office are outside the province of a dental school. In addition, dental teachers are very often removed from the realities of clinical practice and consequently cannot bring pertinent practical experience to bear on decisions affecting course changes that relate to management and organization of a dental office.

The need to provide better instruction in practice administration, however, is being made evident through

feedback from new graduates, and because of this a new surge of interest in and recognition of the importance of practice administration is taking place in dental schools. The relevance of this aspect of dental education has been recently emphasized by the Canadian Dental Association sponsored Teaching Conference on Practice Administration (February 16, 1976) and by the conference of the American Academy of Dental Practice Administration (February 11-14, 1976), in which the Organization of Teachers of Practice Administration was invited to participate.

Curricular orphans

Practice administration courses have been part of the dental training program in all Canadian dental schools for many years. Treated as curricular orphans, they usually take the form of a series of lectures by staff members or guests to the students in fourth year of the dental program or, as in some smaller schools, three-hour seminar sessions, coordinated by the Department of Community Dentistry. The number of curricular hours of practice administration varies from 15 in some dental schools up to 48 in others. Besides making use of recommended texts and printed readings, some schools have also prepared administration manuals on practice administration for their courses. Smaller

schools are able to make field visits part of their courses, while some of the larger schools make use of rotational programs of visits to a neighborhood health centre. One dental school has a fifteen-week block elective program to provide "outside" experience to its dental undergraduates.

The topics generally covered in practice administration curriculae at the present time in Canadian dental schools include: avenues of entering practice, selecting a practice location, initial arrangements, dealing with dental supply companies, office design, professional relations, employment of auxiliary personnel, building and maintaining a dental practice, office records, appointment book control, one-write systems, unemployment insurance, office and personal insurance, income tax, dealing with third party carriers, and economics of practice. Although the list is comprehensive, the time available in the dental curriculum does not permit an in-depth coverage of many of these topics.

At the recent CDA Teaching Conference on Practice Administration, a number of short-comings in the present courses in practice administration in Canadian dental schools were discussed. None of the courses has a viable practical component that allows students to deal first-hand with simulated organizational problems. While it is important that basic issues in practice

administration be discussed, it is also necessary to provide a clinical setting as similar as possible to that which the students will experience upon graduation. A major disadvantage in the undergraduate dental curriculum is the placement of practice administration courses in the students' final year of training. Most schools agree that such courses have a place in the curriculum, but one-hour presentations in the final year, regardless of the expertise of the lecturer, do little to provide students with the appropriate knowledge and experience for the successful transition from student to practitioner.

In most schools the clinical program and facilities are structured in such a way as to make it practically impossible to simulate an actual dental practice environment and, therefore, it is very difficult to realistically instruct students in practice administration. In the clinical aspect of the dental program in many dental schools students are led through blocks of prescribed assignments under the direction and control of demonstrators. Students often emerge from this type of training with a limited overall view of what in actual fact faces them once they graduate. Practice administration courses on the other hand, should be designed to develop in the new graduate a sense of responsibility toward patient care and treatment, to develop his/her ability in office management and personnel direction, and as well, to give some sense of long-term goal achievements.

A number of recommendations for improvements in the practice administration curriculum in dental schools resulted from both the CDA Teaching Conference on Practice Administration and the Conference of the American Academy of Dental Practice Administration. Some of these recommendations follow.

Pre-dental education should include some courses in the social sciences and/or administrative areas. In the first two dental years, practice administration courses should take the form of structured lectures with prescribed notes, text, evaluation procedures, and simulated exercises using problem-solving techniques and audiovisual materials. To avoid fragmentation and overlap of subject matter, delivery of lectures and co-ordination of course content should be the responsibility of one department within the dental school. During the final two years, practice administration courses should provide a clinical situation that closely approximates that of actual clinical practice. Including practice administration as a part of the present clinical teaching units in the dental curriculum appears to be the most meaningful way of teaching the attitudes and values introduced during the formal lectures in practice administration. These units should provide instruction in the essential aspects of office management as well as such things as patient record forms, dental office audit procedures, auxiliary utilization, and dealing with prepaid dental insurances.

Confusion exists about how best to incorporate effective practice administration courses into the dental curriculum without drastically altering the present overall dental training program. Some Canadian dental schools are planning pilot programs using a small number of staff and students to explore the feasibility of introducing effective practice administration instruction in conjunction with existing clinical programs. For example, the University of Toronto instituted a trial mini program early in 1976 as a precursor to a more complete and integrated pilot program. Initial reaction by staff and students has been encouraging. Successful pilot practice administration programs in the United States, such as the one at Loma Linda University in California which integrates clinical and practice administration programs, are also being observed by Canadian dental schools.

Alterations in the clinical structure and basic philosophy of our dental training institutions are necessary to bring about meaningful changes in the teaching of practice administration. It is hoped that pilot programs and the pooling of experience of all dental schools will lead to more effective and meaningful training for undergraduate dental students in practice management.

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Practice management . . .

Continued from page 197

I would strongly urge the establishment of a national task force on practice management which over the next six months to a year could chart in detail the various alternative models and begin a number of demonstration projects. I believe that such a task force could make use of federal money available through the National Health Programs Branch in an effort to undertake new programs in practice management at one or more of the three levels I have suggested.

In closing, I would like to note that

dentistry is perhaps the last of the free professions which still has considerable autonomy over the conditions of its work. In medicine, this sphere of activity was given up long ago to the hospital administrator. Dentistry is in a unique position to innovate in this important area and, by doing so, increase its potential to serve the needs of Canadian society. If this opportunity is not seized, and there are those who believe it may already be too late, it is very likely that government will increasingly be in the position of providing the

organizational setting within which dentistry must function. It is my conviction that the important innovations in dental practice in the next decade will not be at the level of technology but rather will be organizational in their focus. The issue which we confront today is one of providing dentists with the necessary conceptual tools to put these innovations into practice.

Dr. Reid is assistant professor of sociology, Department of Social and Preventive Medicine, Faculty of Medicine, University of Manitoba, Winnipeg.

THE DENTIST AS BUSINESS ADMINISTRATOR

Robert F. Heffernan, CA
Touche Ross & Co.

The object of this article is to give the readers an awareness of the perspective that those of us who deal with dentists have of the business ability of the graduates of dental schools.

Dentists who are setting out to practise their profession have to become business administrators virtually overnight. The extent to which this skill develops will have a considerable effect on their entire careers. Undue business pressures, resulting from bad business decisions made early in their careers, can reflect on their professional attitudes and skills as time goes on. The transition between their academic and clinical environment and their professional and business environment is often traumatic. Undergraduates should be given insight into this facet of their professional lives. A good basic understanding of business concepts would contribute greatly to their ultimate success.

One definition of a business is "a pursuit or occupation that requires time, energy, skill and thought, and requires the employment of both capital and personnel resources." The dental graduate no doubt recognizes that he has to give his time and energy if he is to be successful in his professional career. We can presume that by the time he graduates he has the necessary skills and abilities to fulfil his professional responsibilities. It is questionable whether he has sufficient knowl-

edge and insight to handle the tasks of successfully employing people and capital. This article will concentrate on the employment of capital resources.

Dentistry is the most "capital intensive" of any of the professional business enterprises. The costs of setting up a dental practice exceed considerably those of any other profession (excepting private medical radiology). A typical practitioner setting up in a medium-sized community, in 800 square feet in a new building, might experience start-up costs as follows:

Illustration 1

Leasehold improvements	\$15,000
A single fully-equipped operatory	25,000
Office and waiting-room furniture and equipment	5,000
Sundries and supplies	5,000
Total	\$50,000

Before the dentist sees his first patient, he has had to incur debt of \$50,000. At this point in time, he probably has no idea whether or not he is going to be able to service his debt, let alone produce a reasonable level of income for himself.

Let us take one further step and project the annual operating cost of this same typical dental practice. The "per professional costs" are usually higher in dentistry than in any of the other

professions. Most dentists experience operating costs of at least 50 per cent of their total revenues. In the earlier years, this is often significantly higher. The following is an example of typical annual expenses which might be experienced:

Illustration 2

Occupancy costs (rent, power, water, etc.)	\$ 8,000
Debt service (either lease or principal and interest payments)	15,000
Personnel costs (one assistant at \$150 plus benefits)	8,000
Supplies (office and dental sundries)	6,000
Miscellaneous	3,000
Total	\$40,000

If the dentist works a typical 1,680 hour year, his costs for every hour of available time would be approximately \$23.80. If his actual average was \$45 per hour, and he was able to utilize the full 1,680 hours, he could expect to earn an income of slightly over \$35,000.

Common to all business enterprises are three separate and distinct functions: (1) marketing or sales function; (2) the production function; and (3) the finance function.

When looking at the practice of den-

tistry as a business enterprise, it is apparent these three functions need to be applied and co-ordinated if the practice is to be successful.

The marketing and sales function is most often performed by the dentist and his receptionist. Since all individuals would not have the same degree of skill in the marketing and sales area, the dentist who considers himself weak in this area could supplement by retaining a receptionist who has complementary strengths in marketing.

The production function is obviously the responsibility of the dentist and his chairside auxiliaries. Understandably, the elements of speed, skill and technique greatly influence the level of production. Productivity records might be employed in order to monitor the effectiveness of these elements.

The financial function is again the prime responsibility of the dentist and his office personnel. This function is often supplemented by the use of outside professionals who have particular skills in finance and taxation.

The common element

The common element to all of the functions is the dentist himself. It is imperative he have a good basic understanding of all of these functions before he begins his practice. At the moment, much of his business knowledge is gleaned through exposure to persons with whom he has made early contact. Usually these persons are representatives of equipment manufacturers, systems' suppliers, leasing companies, banking companies, insurance or securities agencies. These representatives can provide a great deal of information and data to the dental student. Unfortunately, most of these individuals cannot deliver their advice from an independent viewpoint. Their counsel is often biased by their personal profit motives. The dental student is often encouraged to attend sessions delivered by outside professionals who do not have good experience in financial and tax planning for dentists, or who do not have exposure to the business operations of a dental practice. As a result, these persons

often promote new ideas with a view to attracting clients to themselves through promoting tax gimmickry. In many cases, these tax gimmicks are, in fact, bona fide tax planning techniques, which, when applied at proper points of time in the dentist's career, can be very useful.

Financial status

To give advice in these areas, one needs insight into the individual's past and present financial status, his marital status, and if married, his spouse's present and past financial circumstances. Finally, and most important, the dentist's financial philosophy (financial conservatism versus risk taking) needs to be considered. The items which are most often promoted without concern for the individual's circumstances are in the areas of management companies, Registered Retirement Savings Plans, Registered Home Ownership Plans, etc. As mentioned above, all of these items are appropriate for some dentists at some points in their careers, but should not be universally applied.

Substantial financial decisions are being made by dentists both at the outset of their careers and throughout their careers without calculating the financial effects of these decisions. No good businessman makes a decision without calculating the short and the long term effects on his income. Planning and plotting future effects of financial decisions is imperative to the decision itself. An example of the planning process would be to plot out initial costs as indicated in Illustration 1. Another example would be the estimation of expenses and fee levels as suggested in Illustration 2. Another illustration might be as follows.

Presume the dentist whose expenses were \$40,000 (Illustration 2) is now fully utilizing his 1,680 hours and is experiencing a backlog in his appointment book. He is fearful of going the next step of adding a second operator and a second assistant, which may be necessary for him to increase his production. The calculation to determine the feasibility of such a move could be done as follows:

Illustration 3

Debt service of new operator (cost — \$20,000)	\$ 6,000
Second auxiliary	8,000
Additional sundries and supplies	2,000
Total	\$16,000

In the illustration above, we used 1,680 hours as the typical work year. Considering that the average work day is eight hours, this works out to 210 work days. By dividing the 210 days into the \$16,000 increased annual costs, we can determine that the office would have to produce approximately \$76 per day additional revenue in order to accommodate the increased expenses. The dentist would then have to make the judgement as to whether or not he could, in fact, fill the extra time and create sufficient efficiencies to increase his revenue by the \$76 per day. Every businessman has to go through thought processes like these to make his day-to-day financial decisions.

The solution to the problem will not be easy. Each school now has courses in practice administration, which deal with some of the problems. These courses do not, however, seem to be creating the attitude on the part of the students that the career in which they are embarking is a business as well as a profession. The courses should be given by the practice administration professors of the various schools, but should be supplemented by independent business-oriented individuals who have experience in dealing with professionals, and in particular, with dentists.

The dental schools should consider introducing a course of study which:

1. Gives the student insights into business management.
2. Gives the student exposures to the mechanics of his business operation.
3. Gives the student some conception of the business organization.
4. Illustrates to the student the benefits of financial and tax planning in his business decisions.
5. Creates an attitude which equips the student to face the realities of his professional business career.

MANAGING A DENTAL PRACTICE

K. Diane Link
Mardan Business Systems Limited

There are many areas of concern in the field of practice management:

How to entice patients into a dental practice.

How to educate patients.

How to ensure patients pay for treatment.

How to organize the finances in a practice.

How to organize the time spent within the practice.

How to ensure the staff is an asset not a liability.

Time management

It has been said that the appointment book is the "Barometer of Happiness." It is the key to a successful practice; it dictates the type of dentistry to be practised, the time to leave and the time to return the following day. It also dictates whether or not the doctor will work weekends or holidays and whether he will have time to attend conventions and seminars. It must be controlled.

Dental students should be made aware of the various appointment books available and their relative benefits. They should be taught to book space, not time, especially with the advance of expanded duties and the space required for these duties.

They should also be taught to organize their days to suit their own body time clock. If they wish to work ten hours per day for four days — why not? If they wish to work shift work and share their facilities — why not?

Students should also be taught

effective ways of setting up and controlling a Recall System.

Systems management

Other areas of an office require the same degree of attention. One of these is accounting. Doctors should understand the check and balance features built into the system they use so they can be monitored easily.

Let's not allow them to follow in the steps of one doctor I know who wrote off the entire accounts receivable at month end. Students must also be aware of the billing systems available so they can knowledgeably choose a system that suits their needs.

Dental students must also be made aware of the systems available for handling the accounts payable aspect of their practice. They should be knowledgeable in systems available before they automatically choose the regular cheque, stub, envelope, accountant posting G/L route. They may find a system which will allow the business assistant to perform all of these tasks at once in a shorter time at less cost.

Employee payroll is an area where accountants spend a major portion of their time. Students should be made aware of systems available to control payroll in an office with few employees.

Philosophy

Doctors are crying out for help in all areas of practice administration — that aspect of the practice in which they

proclaim a distinct lack of knowledge.

Students, ready to set up, are unaware of how they're going to practise dentistry. They haven't developed or tried living with their own philosophy towards dentistry.

These students must have their own ideas. Will it be drill, fill and bill? Will it be a practice where patients tell the doctor what is wrong and how to fix it? Will it be a low-key preventive practice or a practice where complete diagnostic records are taken and maintained and prevention is the key to every phase of the practice? Who will perform these tasks? Who will interview and hire the auxiliaries? Who will train them?

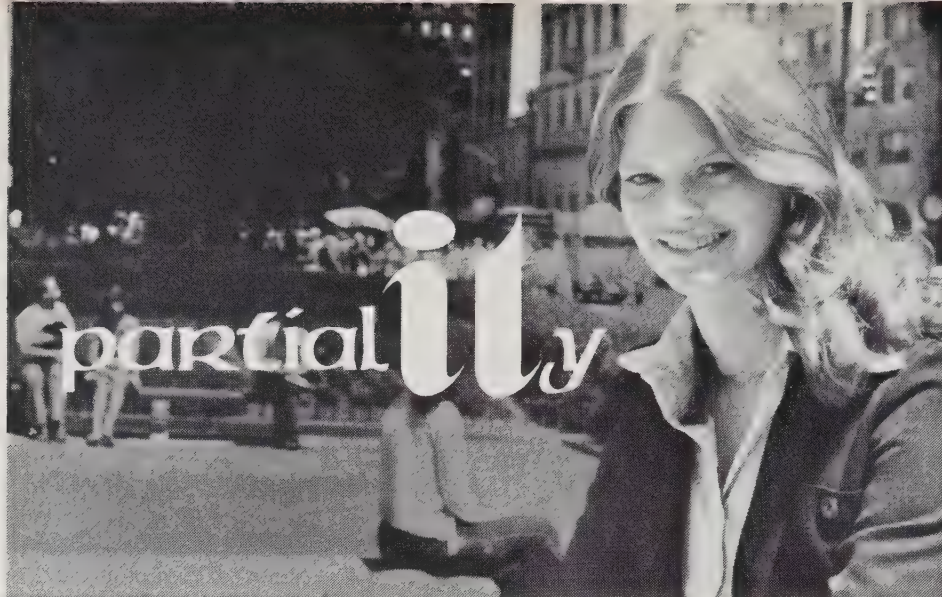
This training process is not, in many offices, a one-time affair. The life span of a dental assistant in the office where she is trained averages as low as 4 and one-half months and it may cost up to \$10,000 in lost revenue each time the doctor retrain an auxiliary. Isn't that a substantial investment for possibly only 4 and one-half months?

There are many more problems doctors encounter. As they hire employees, they are often plagued by misunderstandings — salaries and benefits, working hours, vacation time — how much and when, sick leave, standards of dress.

A positive approach

A positive alternative to this indecision and dilemma is to develop an *office manual*. It should be started in a dental student's first year when he is apt to be

Continued on page 206



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PERSONAL GROWTH

T. D. Marshall
Mardan Business Systems Limited

All professions, learning institutions, industry, and even the church are re-evaluating — (1) where they are now, (2) where they would like to be, and (3) how they are going to get there.

Former U.S. President Johnson said “Solutions are simple once you define the problem.” However, few people have the facts, consequently problems continue to exist. Moderation seems to be the answer. For example, many firms advertise that alcohol consumption be done in moderation. They know that, in order to retain their market, this is a necessity.

People's needs and wants are changing rapidly and we must be tuned-in to the change. I don't profess to know anything about the practice management training courses in dentistry. But over the past 11 years I have talked to hundreds of graduates from a practice management viewpoint, and have found only a handful with their personal and business objectives clearly defined.

I believe the educators are saddled with some uncontrollable factors with respect to the types of individuals selected for dentistry:

- Are marks the major determining factor as to who is being accepted into dental school? How much other data base is being considered for screening?
- Has the increase in marriage breakdown had an effect on or increased the personal problems with students?

In the area of personal growth, 20 years ago the influences were: the home, the school, and the church.

Based on children today, a study indicated that of 3.2 million children between the ages of two and 11, the average child spends three hours per day watching television. We can safely conclude that currently the number one influence in personal growth and development is television.

The children's complaints are: peer pressure, loneliness, fear, and power. What they really crave is love without any strings attached.

Since this is affecting and will further affect future students who enter dental schools, the curriculum and the educators will be compelled to change in order to meet the changing needs of people.

One of the greatest people ever to hit the sporting scene was Vince Lombardi. He suggested to Burt Starr that in order to be successful you must sort out your priorities. Lombardi's were: Serve God, serve your wife, serve your children, serve the Green Bay Packers, and serve other organizations and people.

This was his recipe for a successful, rounded life. What are we doing to help students in this area? How many have their priorities sorted out upon graduation? As I see it, very few students have been encouraged to assess their own priorities. For many the priority is first and foremost “dentistry.”

A large number of students have science degrees or, at least, science backgrounds upon entering dental school. This helps them to deal effectively with the scientific side of dentistry, but how would their backgrounds stand up to

scrutiny in the area of psychology and sociology — those subject areas so vital in helping them deal with the human side of dentistry?

If a student is encountering personal difficulties, it will be difficult for him to drop those problems and concentrate fully on the learning aspects of dental school. What about having interested people assigned to students to aid in the areas of personal growth, to act as sounding boards and be a stabilizing influence?

No government, institution or dental school can legislate love or attitudes. It can only, through example, motivate people to develop an attitude of love, respect and tolerance for their fellow man. It has been said that the recipe for success in many fields is 85 per cent attitude and 15 per cent ability. Yet, are we not, at dental schools spending 85 per cent on the technical know-how and only 15 per cent or less on the attitude adjustments? Why dentistry? How to deal with people? What to say? How to say it? The emphasis within any health science profession must be on the whole person.

In actual fact, the appreciation level for each other's profession between medicine and dentistry is very low. Yet, isn't dentistry related to the entire body and not just confined to the 32 white structures located in the oral cavity?

Dr. Hal Higgins says, “The mouth is a barometer of the body.” If this is true what can we do in dental schools to increase a student's awareness? Students in dentistry should be spending

several days in their third and fourth years observing medical family practice clinics and solo practices, along with some of the specialty fields such as ophthalmology. They should be made aware of screening tests which can be done routinely within their own dental offices and will encourage them to treat the total person and not just the teeth. This may also be a two-way street. As members of the medical profession are made more aware of advances in modern dentistry they too may be better able, once in their own practices, to treat the total person.

Governments complain about the lack of health care in far northern areas. Why not utilize students throughout the summer holiday sessions or initiate semester systems to allow students the opportunity to practise total health awareness, and, at the same time, provide them with an invaluable learning experience about themselves and others. Dentists in all areas could be visited by students to do an evaluation or critique of their dental practices. It would give the practitioner an opportunity to view his practice as outsiders see it and to implement modern ideas suggested by the student. It would give the student an opportunity to compile data for a thesis entitled "What Makes a Successful Dentist?"

A successful program at one dental

school uses "relative value analysis." Students from first, second, third, and fourth years work together as a team with first and second year hygiene students. The team is responsible for scheduling their own appointment time, planning treatment and financial arrangements and performing all treatment required on a specified number of patients throughout the year. One clinician is assigned to each team. Using this team or cell system gets away from a forced relationship. It allows the student to develop a behavioral approach rather than a mechanical approach to patients.

Students should have time available to attend conventions and business shows that would be beneficial to them as they prepare to set up their practices. They should be taught how to select and interview prospective staff members. They should be trained in telephone techniques because for almost all prospective patients the telephone is their first contact with the office. Students must be trained in the value of communication and how to achieve it. Learning does not occur in one intellectual exchange; therefore, properly conducted, timely staff meetings may be another key to a successful dental practice.

Finally, dentists have a moral obligation to present the best solution to the

patient; however, most are not trained as to how to plan this solution effectively and efficiently and how to present this well-planned solution to the patient.

Many students do not realize the potential problems inherent in setting up a business. They do not realize they are on the brink of a million dollar operation with all its implications in planning, staffing, marketing, producing and financing. They must be aware that success in business means surrounding yourself with competent people — people who will work *with* you, not for you — people who will complement your strengths and weaknesses. This knowledge could come through businessmen and other professionals who have been successful in their field by having them involved on a regular basis, in the areas of business training, human relations and personal growth.

As I see it, the dental students now and in the future are themselves a totally different type of person — products of totally different influences than those of 20 years ago. They are individuals who must be motivated and encouraged to develop their own personal set of values and priorities. We must be equipped to face this challenge and deal with it honestly so that we can prepare students for a successful, personally-fulfilling career.

Managing a dental practice . . .

Continued from page 203

idealistic. This idealism should not go to waste, it only needs to be tempered. More practical ideas will surface as the student progresses through dental school and gains exposure to many doctors and their dental practices.

As a student, he should be trained to analyse offices for practice builders and destroyers, organizational techniques and ideas on how to motivate staff and patients. He should be aware of helpful publications available in the dental market and retain articles and suggestions which may apply to his future practice.

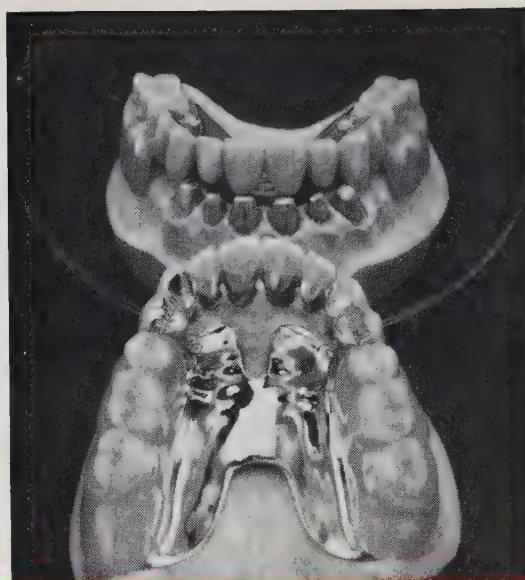
These are just a few of the topics to be included in a student's policy manual — a manual to be started in first year, moulded, shaped, added to, revamped and reorganized throughout his years in dental school. This manual should reflect the prospective young professional and his philosophy about dentistry and the virtues he wishes to have built into his practice.

If every dental student left school with a book that was actually part of him — something he had put together through knowledge acquired at school, lectures, seminars, conventions, cur-

rent publications and through visiting existing dental practices — we would have a far happier, far more satisfied group of professionals in dental practice today.

Dentists get the type of practice they deserve. It is important that they fully understand how to manage their time, how to control their finances and that they develop and adopt a positive outlook towards dentistry that will stand them in good stead through the years in which they are in practice.

They get what they deserve and they deserve the best!



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Reciprocal arms of direct retainers in removable partial dentures

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The lingual reciprocal arm of an extracoronal direct retainer must firmly support the abutment tooth while the buccal retentive arm flexes and moves to enter its designated position during insertion of a removable partial denture. A method of preparing the lingual reciprocal surface is described.

Le bras réciproque lingual de l'élément extra-coronaire de rétention directe doit fermement soutenir la dent pilier alors que le bras buccal de rétention fléchit et se déplace pour pénétrer en position voulue, au cours de l'insertion d'une prothèse partielle amovible. Les auteurs traitent de la méthode de préparation de la surface linguale réciproque.

Removable partial denture prosthodontics presents many problems in the design of retentive and reciprocal arms and occlusal rests¹ that lead to the violation of biological principles. Questions of bone resorption, tooth mobility and properties of various materials are adequately described elsewhere; but if the life expectancy of abutment teeth is to equal that of the patient, contradiction of biomechanical principles cannot go unheeded.²

To evaluate one of these problem areas, the authors recently visited several commercial laboratories and examined cast chrome cobalt partial denture frameworks. The

evidence observed induced us to prepare this article which deals specifically with the reciprocal arm of direct retainers and the abutment tooth.

Survey

Using the path of insertion given by the guiding planes in 300 frameworks, about 93 per cent (282) had ineffective reciprocal arms on their extracoronal direct retainers (Fig 1,2). Eighteen frameworks which had satisfactory reciprocation were on cases which fitted prepared crowns. No natural tooth had been satisfactorily prepared for reciprocation. Some abutment teeth had a full crown with adequate undercut but with no preparation for the reciprocal arm!

Discussion

The technicians were obviously blameless and cannot be held responsible for errors in mouth preparation and design of removable partial denture frameworks.³⁻⁵

Although many excellent textbooks⁶⁻¹¹ refer to reciprocation, some authors and many dentists disregard it. Holmes¹² discusses rest seats, guiding planes and retentive arms but ignores the role played by reciprocal arms. Potter et al⁵ even suggest that "the lingual reciprocating arm can often be eliminated by the use of a guiding plane on the *distal* (our italics) surface." While many other factors must be considered,¹ overlooking reciprocation dooms these remaining components and the appliance to failure.

Simultaneous reciprocation must be employed on the opposite side of a tooth to prevent damage from load exerted by a retentive arm when a removable partial denture is inserted or removed. Only the tip of the retentive arm should enter the retentive area; the reciprocal arm stays at or above the contour line. This arm must, however, contact



Fig 1 Arrows 1 and 1a point to the initial contact of the retentive arms when the framework is seated. Note the spaces at 2 and 2a between the reciprocal arms and the teeth.

the tooth before any part of the retentive arm exerts a force on the tooth. The exact moment that a retentive arm begins to exert pressure on the tooth depends on (1) its extent into the undercut area, and (2) the contour of the tooth occlusal to the undercut area.

Since natural crowns are rarely suitable for clasps without modification, some alteration of crown contour is usually necessary for correct use of each component in extraoral retainers: retentive arm, rest, guiding plane and reciprocal arm.

In a normal premolar (Fig 3) the height of contour is slightly more occlusal on the lingual than on the buccal surface but there is ample room for a retentive arm on the buccal surface. In most cases, only when the framework is fully seated is the relationship of the reciprocal arm on the lingual and the retentive arm on the buccal surface as depicted by A-B in Fig 3. The retentive arm should exert little or no pressure at this time. It functions only if the framework begins to move out of the position. But with the design depicted in Figure 3, the tooth loses support from the reciprocal arm immediately and therefore moves lingually every time the framework moves up and down in the mouth. Here then, the reciprocal arm braces the framework only when load is applied toward the tissue, but it provides no reciprocation during other excursions.

To analyze the figure, we have drawn a dotted line (A-A₁) parallel to the path of insertion of the framework, from the most desirable undercut point up to the occlusal surface. The point where this crosses the buccal surface is the point of first contact of the retentive clasp on insertion of the framework. If one projects a parallelogram of position, the reciprocal arm in this instance would be out in space at position B₁, with the distance A-A₁ equal to B-B₁. This is frequently observed in actual practice.

If the retentive clasp arm is to enter the undercut area, it must either flex or the tooth must move. In Figure 3, the latter occurs, since there is no support on the lingual side. Thus, repeated seating and dislodgement soon loosen the



Fig 2 Only when the rests are seated do the reciprocal arms contact the lingual aspects of the teeth (arrows).

abutment tooth. To protect the tooth the retentive arm must therefore flex. This occurs only when a reciprocal arm contacts the tooth at the proper time to resist the forces exerted by the retentive arm.

In Figure 4, the lingual bulge has been removed leaving a flat surface parallel to the path of insertion of the denture. When the framework is seated, the reciprocal arm is the first to contact the tooth (Fig 4, B₁₁). By the time the retentive arm makes its initial contact at A₁, the reciprocal arm has moved down the tooth to B₁ and it reciprocates the action of the retentive arm to support the tooth while the retentive arm moves buccally to enter the retentive area at A. The reciprocal arm now comes to rest at B. The prepared lingual surface conforms to the guiding planes which were placed earlier on the mesial or distal surface of the tooth.

The following procedure is used to develop the reciprocal lingual surface on an abutment tooth. The analyser rod (Fig 5a) of a surveyor is modified by grinding away half of its tip (Fig 5b). With the diagnostic cast in its final position on the surveyor, the modified rod is inserted in the surveyor (Fig 5c) and placed against the abutment tooth (Fig 6, position A). Maintaining its spatial relationship, the rod is then rotated in its vertical axis and raised. Once the tip is above the survey line, the rod is rotated again to bring the tip into function and is slowly lowered onto the tooth until it touches (Fig 6, position A₁) a point exactly above the undercut. Next, the rod is swung around the tooth in the same horizontal plane to contact the lingual surface at position B₁ (Fig 6). A line is now scribed at this level on the entire lingual surface. Apical to this survey line, tooth structure is then reduced with a diamond stone held parallel to the path of the insertion. Sufficient tooth structure is removed to provide reciprocity and permit both clasp arms to extend beyond the angle of convergence (Fig 7).

This technique can be used on natural teeth if a small, clear acrylic template is used to transfer, from the cast to the mouth, the location and axis of the plane to be ground. The reciprocal surface can also be readily developed in wax on a

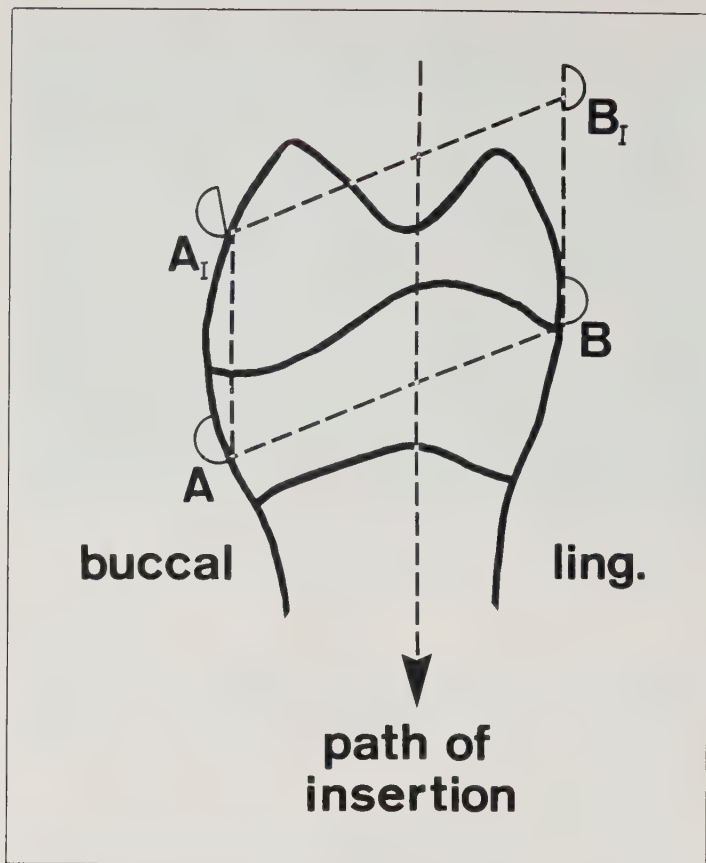


Fig 3 Sketch of a premolar showing the typical position of circumferential clasp arms in cross-section. A-A_I represent the positions of the retentive arm. B-B_I represent the positions of the reciprocal arm. The path of insertion is in the long axis of the tooth.

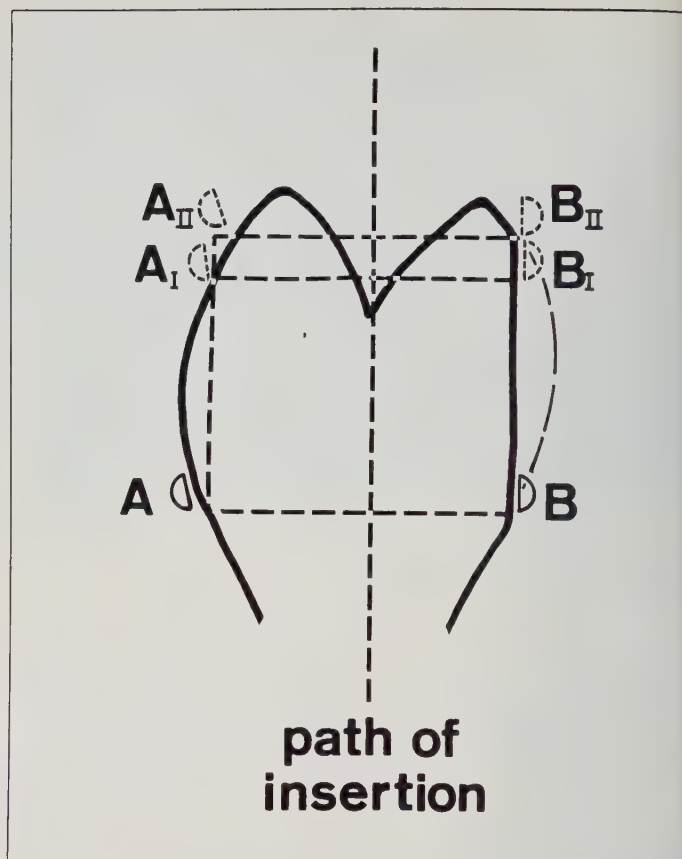


Fig 4 Sketch of the premolar after preparation to accept a reciprocal arm (denoted by positions B, B_I and B_{II}) and a retentive arm (denoted by positions A, A_I and A_{II}). The path of insertion is in the long axis of the tooth.

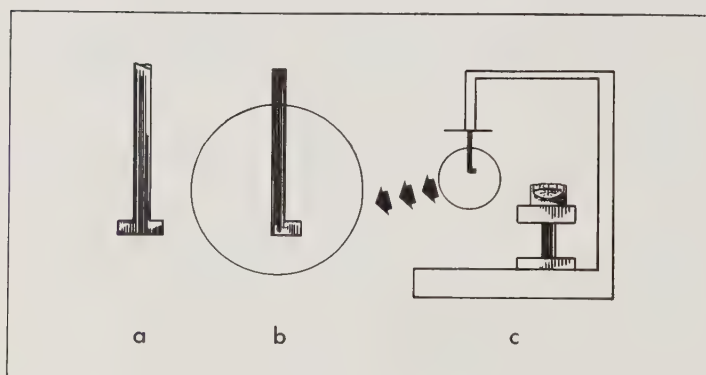


Fig 5 A typical analyser rod and how it may be modified.

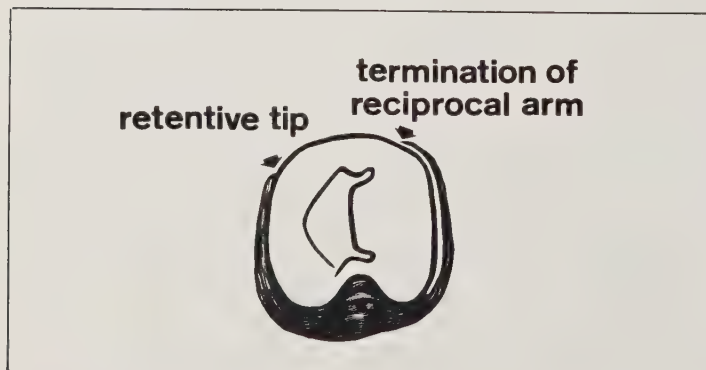


Fig 7 Occlusal view of a tooth emphasizes the importance of extending the clasp termination beyond the angle of convergence.

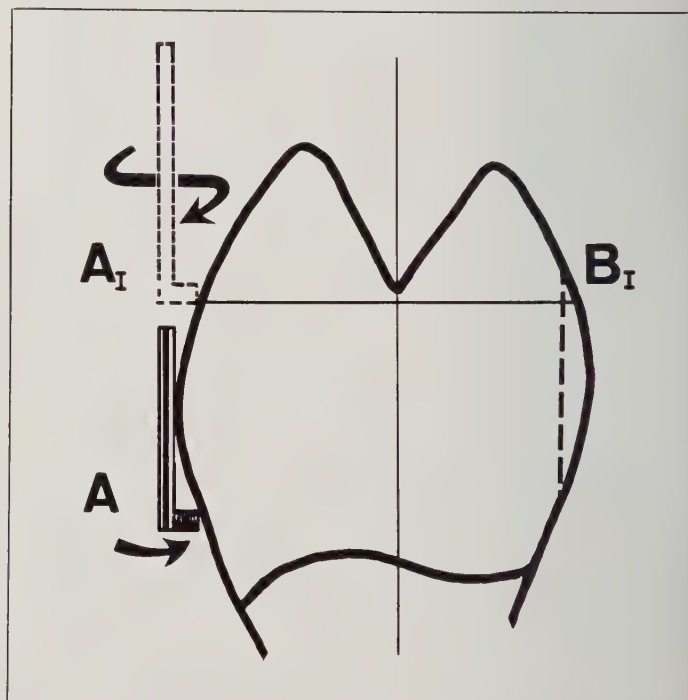


Fig 6 Use of an analyser rod to outline the minimum amount of tooth structure to be removed for acceptance of a suitable reciprocal arm.

l crown. It is not always possible or desirable to crown every abutment tooth, however. Whether or not a tooth could be crowned depends on the amount of tooth structure to be removed to accommodate the reciprocal arm satisfactorily. If dentine is exposed, a crown is necessary. If, for financial reasons, a compromise must be made, it is preferable to reduce the retainer rather than the tooth.

Summary

We have described a method of preparing the surface of an abutment tooth to accommodate a reciprocal arm of an intracoronal retainer for a removable partial denture. This is the responsibility of the dentist who must prepare the tooth with due consideration for the functions of clasp arms. Proper reciprocation will not prematurely loosen abutment teeth in patients who wear removable partial dentures.

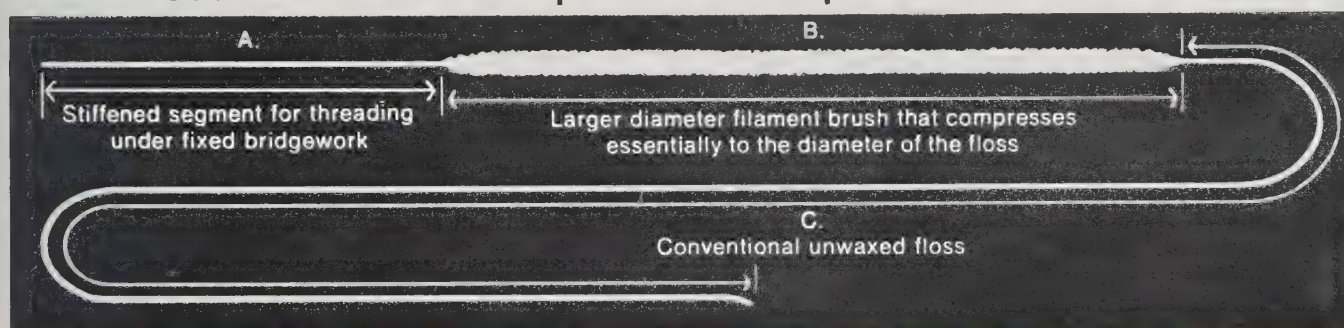
Dr. Harrop is associate professor and head, Department of Restorative Dentistry, Faculty of Dentistry, University of British Columbia, Vancouver. Dr. Javid was formerly assistant professor, School of Dentistry, University of Florida, Gainesville; and is now

professor, Removable Prosthodontics, School of Dentistry, University of Tehran, Tehran, Iran.

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L'obturateur du voile du palais

Jacques Valiquette, BA, DDS

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Montréal

Ces nos jours, la plupart des enfants qui naissent avec une fissure palatine, incluant le voile du palais, sont réhabilités dès leur bas âge, par chirurgie selon une séquence bien précise et connue qui aide à corriger leur voix nasillarde ainsi que leur déglutition inadéquate. Chez les patients parvenus à l'âge adulte sans traitement, une intervention chirurgicale risque de ne pas donner les résultats escomptés dû au fait que le patient a déjà acquis les habitudes d'élocution et de déglutition. Alors pour eux il existe une autre possibilité de traitement, soit le port d'un obturateur du voile du palais. La confection et l'adaptation d'un tel obturateur entraînent pas de conséquences irréversibles. S'il n'apporte pas de résultats, la chirurgie peut toujours être envisagée. Si l'on procède à l'inverse et qu'un lambeau pharyngé ne réussit pas, le traitement ne pourra plus être complété par un obturateur.

Un tel obturateur consiste en une boule d'acrylique retenue par un grand connecteur à une prothèse dentaire (fig 4-3) ou, mieux encore, à une plaque palatine ancrée sur les dents naturelles (fig 4-6). Cette boule, insérée dans le rhinopharynx, a pour effet de compléter le sphincter pharyngé.

Chez ces patients, à cause de l'absence du voile du palais, il est difficile et même impossible pour eux sans obturateur, d'isoler le rhino-pharynx au moment de la déglutition, rendant ce geste physiologiquement gênant et inconfortable. Le rôle de l'obturateur est celui d'un bouchon sur lequel vient se resserrer les muscles supérieurs du pharynx pour assurer l'étanchéité nécessaire à une déglutition normale. Ceci est assuré en avant par la face postéro-supérieure du voile,¹ latéralement par les pharyngo-staphyliens et les luettres bifides, en arrière par le constricteur supérieur du pharynx formant la crête de Passavant. La crête de Passavant est particulièrement bien développée chez ces patients alors qu'elle est beaucoup moins apparente chez un patient normal, l'organisme cherchant à compenser l'absence du voile du palais en hypertrophiant les muscles postérieurs à la fissure.

La figure 7 montre les mouvements de la déglutition d'un patient souffrant d'une fissure palatine, arrêtés à quatre étapes différentes. Sur l'illustration (a) qui représente le patient au repos, on note de chaque côté les deux luettres bifides et en arrière plan la partie postérieure du pharynx (muscle laryngo-pharyngien). En (b) le patient commence sa déglutition, les deux luettres bifides se rapprochant et la crête de Passavant commence à se dessiner à l'arrière plan. Sur la figure (c) le mouvement s'accroît et finalement l'illustration (d) montre la contraction maximum au moment de la déglutition. Les deux luettres bifides sont très rapprochées et la crête de Passavant nous apparaît comme un bourrelet très prononcé sur la paroi postérieure du pharynx. A la séquence maximum du mouvement, soit en (d), le patient n'a pas réussi à isoler le rhino-pharynx qui se trouve au-dessus de la crête de Passavant.

La figure 8 montre le même patient, mais cette fois avec un obturateur du voile du palais. Sur l'illustration (a) qui représente le patient au repos, on note la présence d'un obturateur à la partie supérieure où se trouverait normalement le voile du palais; en (b) le patient amorce la dégluti-

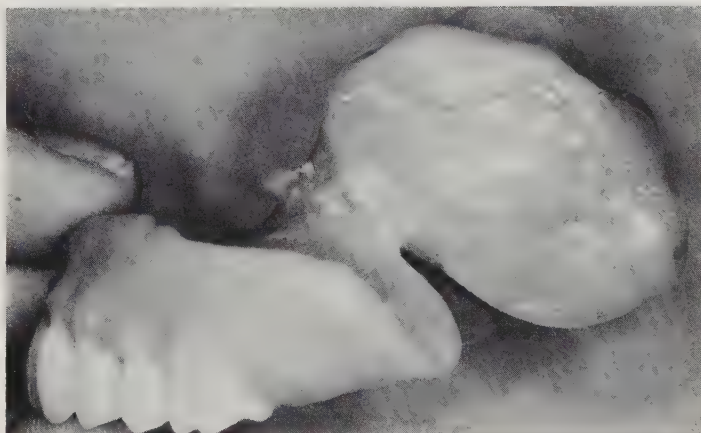


Fig 1 Obturateur du voile du palais relié à une prothèse dentaire.

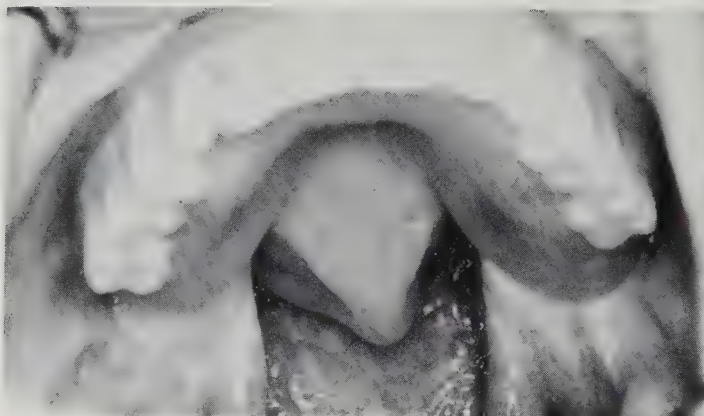


Fig 2 Obturateur en place sans mouvement des muscles pharyngés.

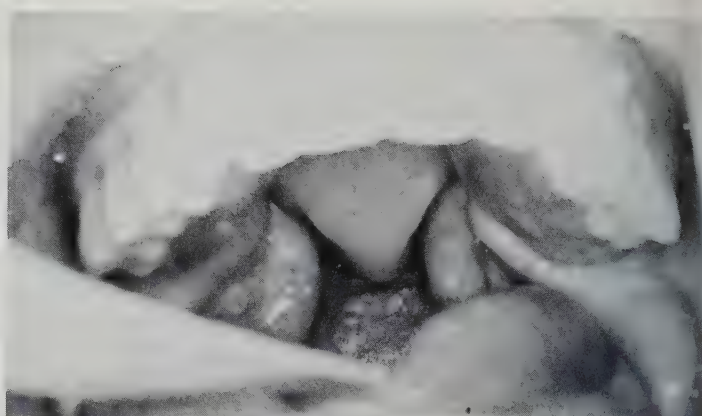


Fig 3 Contraction maximum des muscles autour de l'obturateur au moment de la déglutition.



Fig 4 Obturateur du voile du palais relié à une plaque palatine.

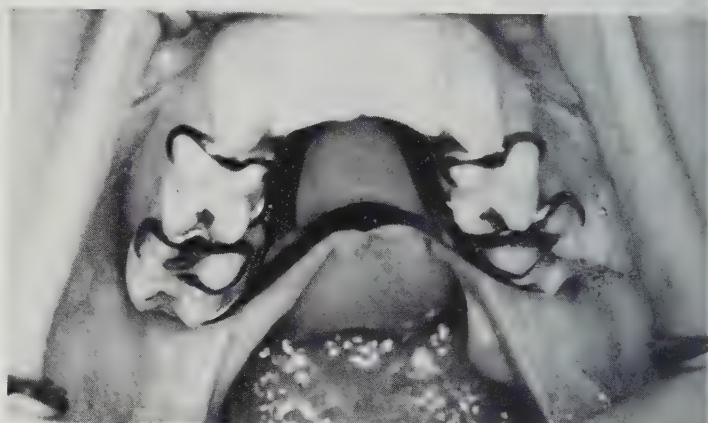


Fig 5 Obturateur en place sans mouvement des muscles pharyngés.

tion et les muscles commencent à se rapprocher de l'obturateur; à la figure (c) il ne reste que très peu d'espace entre les muscles et l'obturateur et enfin, en (d) le rhino-pharynx est complètement isolé de la cavité buccale; à noter à l'arrière plan la crête de Passavant qui vient s'appuyer sur la face postéro-inférieure de l'obturateur.

Les radiographies prises lors de l'ingestion d'un repas baryté sont présentées à la figure 9. En (a) on remarque le bolus dans la cavité buccale et c'est en (b) que l'on remarque le tracé de la crête de Passavant. En (c) et (d) elle s'éloigne déjà.

La position de l'obturateur par rapport à la contraction des muscles du pharynx est très importante.¹ Trop bas près du bord inférieur du voile il gêne les contractions de celui-ci. Trop haut, il est inefficace ou bien il risque l'obturer les orifices des trompes d'Eustache, ce qui se traduit par un craquement dans les oreilles lors de la déglutition. S'il s'étend trop loin à l'arrière, il peut faire pression sur l'os atlas et provoquer des étourdissements et même des pertes de conscience.

Du point de vue phonétique, le pourcentage de nasalité est déterminé par l'orthophoniste avant la confection de l'appareil. Ce dernier, lorsque l'obturateur est terminé, suit le patient en lui faisant pratiquer des exercices appropriés

pour rééduquer sa parole. Un miroir placé devant les narines permet d'apprécier par l'étendue de la tache de buée qui s'y dépose s'il existe encore une déperdition nasale et l'importance de celle-ci, lorsque le patient parle. A la fin du traitement on procède à une nouvelle évaluation qui pourra démontrer une diminution des nasalités. Dans bien des cas, elles sont abaissées au point d'être presque inaudibles.

Technique de prise d'empreinte

La première étape consiste à ajuster un connecteur central à une prothèse finale ou à une plaque palatine. L'orientation du connecteur dans le rhino-pharynx est déterminée par la hauteur que prendra l'obturateur. Un premier moulage est obtenu en introduisant dans le rhino-pharynx une masse de cire à modelage (compound) retenue par le connecteur. On demande alors au patient d'avaler afin de mouler dans le "compound" les muscles de la déglutition pendant leurs contractions maximums. Le patient doit ensuite pencher sa tête en avant, en bas et faire, dans cette position, des mouvements de rotation vers la droite et vers la gauche. Ces mouvements de rotation sont très importants afin que l'appareil final ne nuise pas au patient lorsque celui-ci déplace sa tête dans toutes les directions. Pour le moulage final, on réduit de 1 ou 2 mm. toute la surface du premier moulage

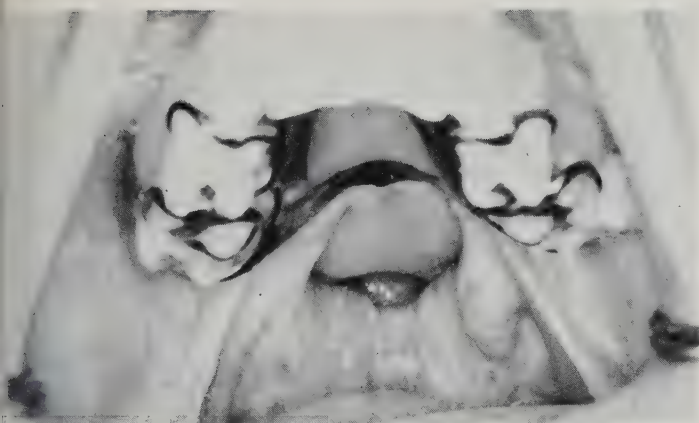


Fig 6 Contraction maximum des muscles autour de l'obturateur au moment de la déglutition.

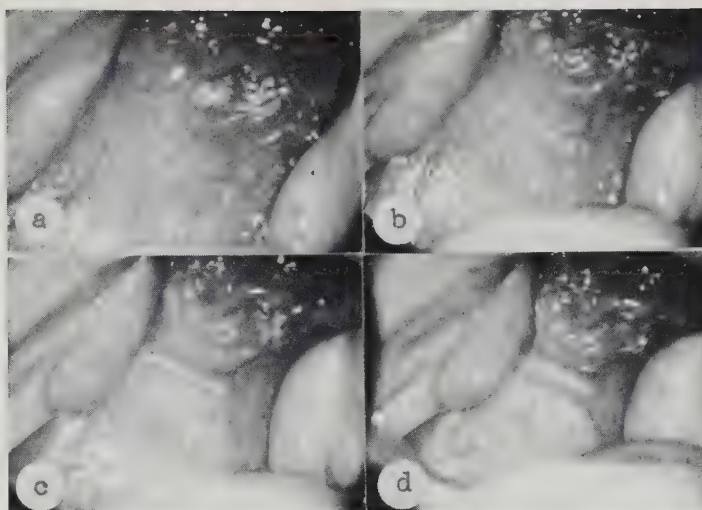


Fig 7 Séquences de la contraction des muscles pharyngés lors de la déglutition chez un patient atteint d'une fissure palatine.

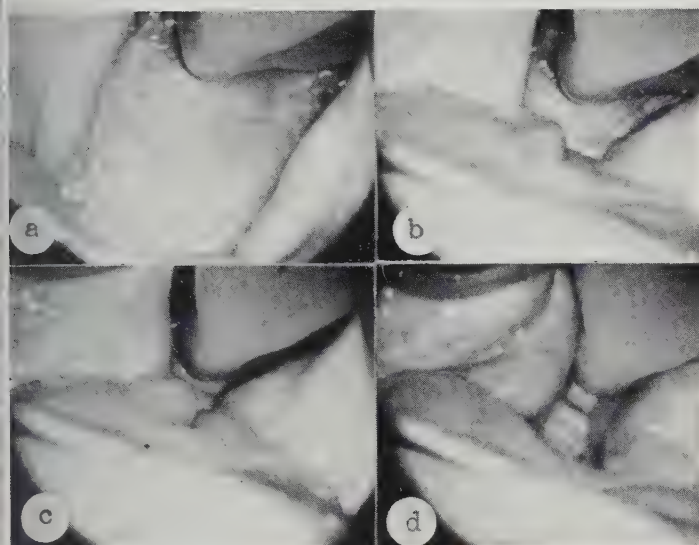


Fig 8 Séquences de la contraction des muscles pharyngés autour d'un obturateur pour assurer l'étanchéité du rhino-pharynx.

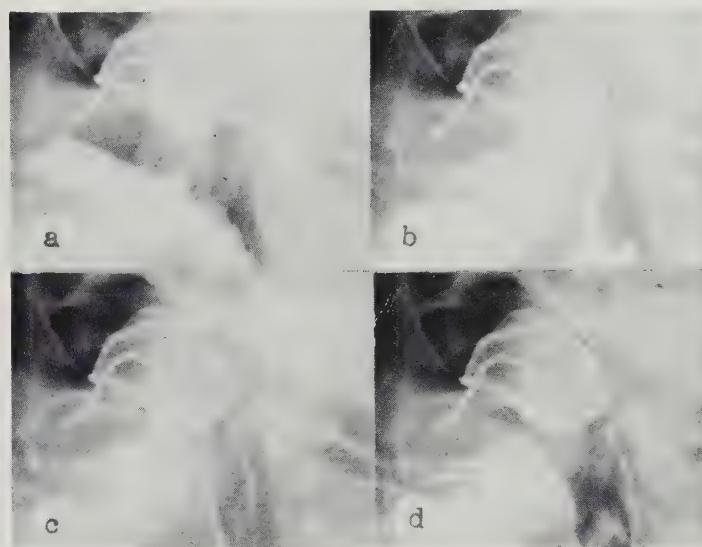


Fig 9 Séquences télé-radiographiques prises lors de l'ingestion d'un repas baryté montrant la progression de la crête de Passavant qui vient s'appuyer sur la partie postérieure de l'obturateur.

avec un bistouri lame 15 et on ajoute sur celui-ci une cire à empreinte de type Adaptol* ou Korecta**, ou un matériel élastique de type Impregum†. On demande au patient d'exécuter les mêmes mouvements que précédemment. L'appareil est ensuite confectionné en résine acrylique par la méthode conventionnelle de mise en moufle.

Discussion

Les patients atteints d'une brièveté du voile du palais et qui n'ont pas été traités sont des handicapés sociaux aussi bien que des handicapés physiques. Ils ont souvent de la difficulté à s'intégrer à la société et d'y remplir leur rôle, gênés par des difficultés de langage. Le prosthodontiste peut les aider grandement à améliorer leur condition par la confection d'un appareil obturateur du voile du palais.

Dr Valiquette est Chef de la section de prothèse maxillo-faciale du Centre Hospitalier Notre-Dame de Montréal, et Dr. Gravel est Résident en médecine dentaire au Centre Hospitalier Notre-Dame de Montréal.

* Adaptol: Jelenko

** Korecta: Ken

† Impregum: Espe

1 Benoist, M. Prothèse vélo-palatine. Encyclopédie Médico-Chirurgicale. Paris 11-1959, p.8.

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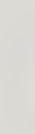
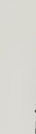
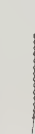
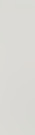
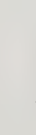
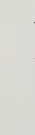
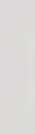
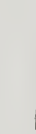
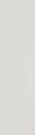
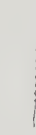
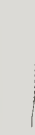
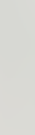
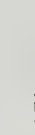
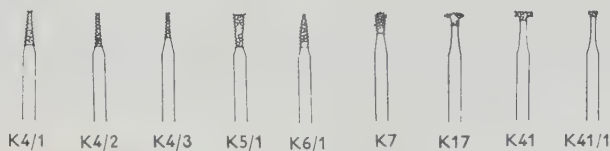
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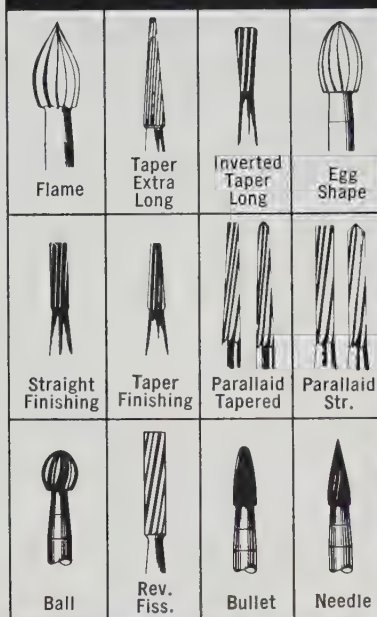
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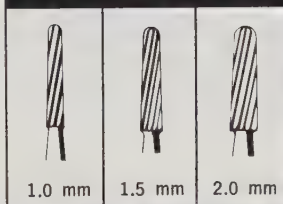
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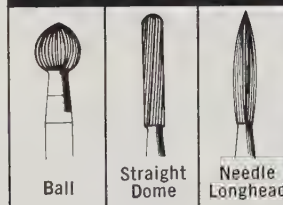
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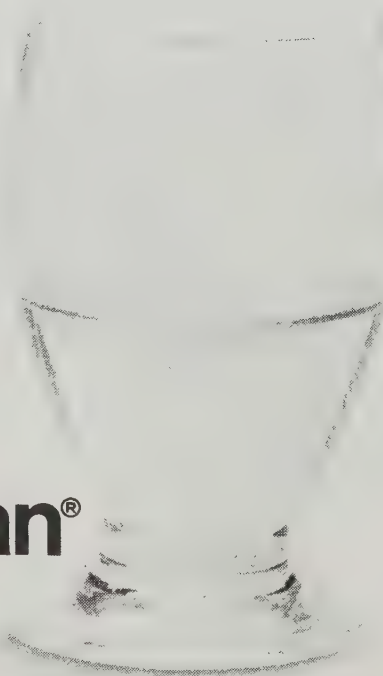
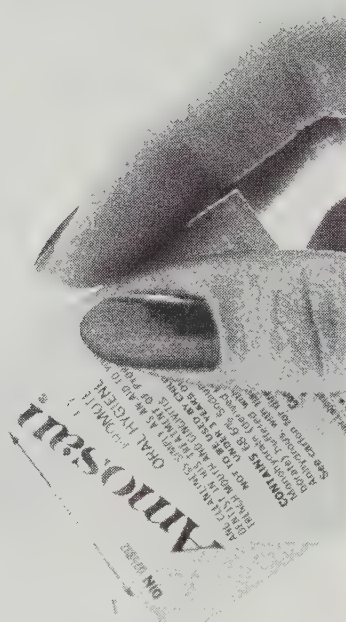
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ADVERTISERS' INDEX

C. & L. E. Attenborough	196
Ash Temple Ltd.	219
Astra Chemicals Ltd.	OBC
Block Drug Co.	168
John O. Butler Co.	158
L. D. Caulk Co. of Canada	193
Colgate-Palmolive Ltd.	189
Cooper Laboratories Ltd.	220
Dentsply International	156, 173, 212
Educational Health Products, Inc.	211
Charles E. Frosst & Co.	198
Howmedica, Inc.	IFC
Kerr Manufacturing Company	166
Kodak Canada Ltd.	IBC
Lever Detergent	162-163
The C. V. Mosby Co.	171
Nobilium Products of Canada	207
Pelton & Crane Co.	165
Pfingst & Company, Inc.	217
Procter & Gamble	155
Ticonium Company	204
Whaledent International	160

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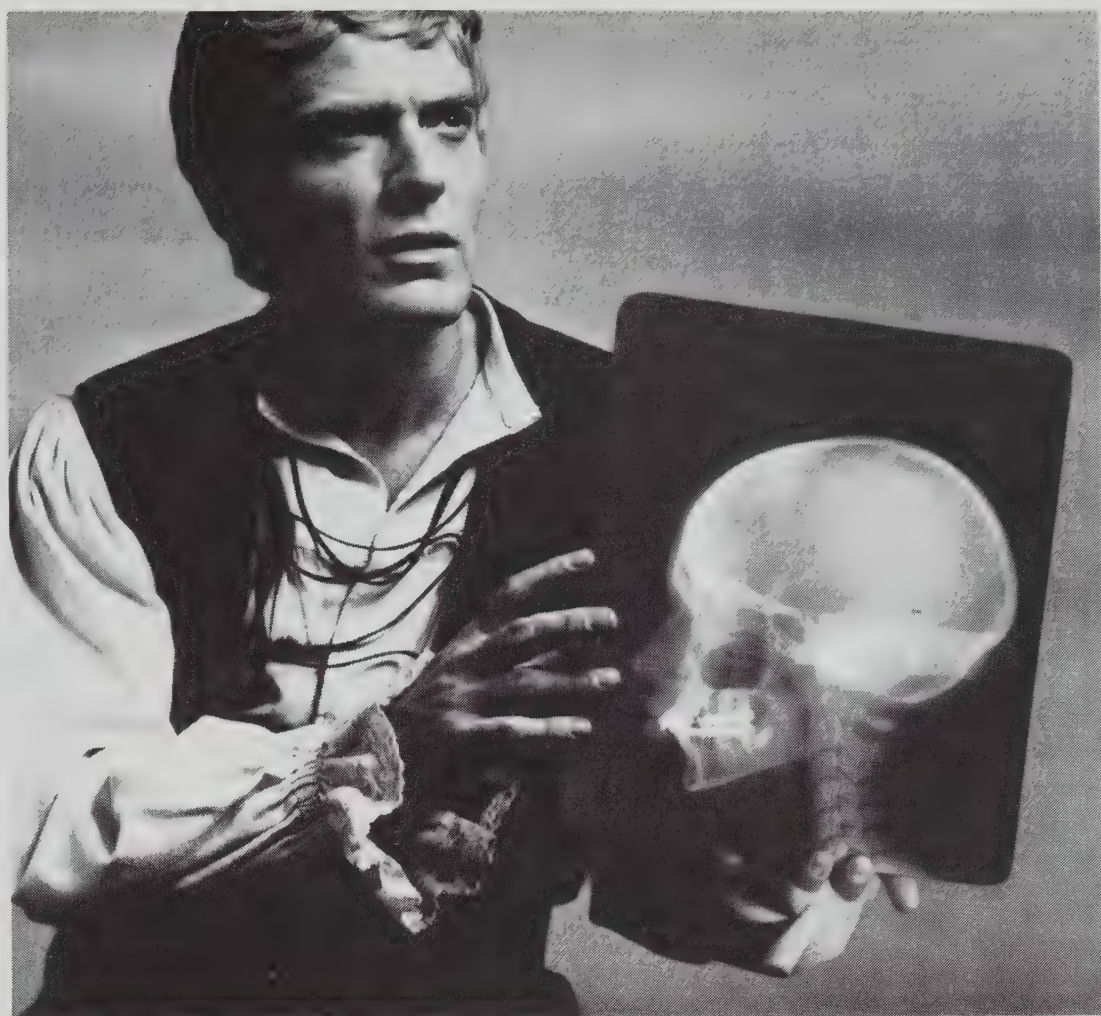
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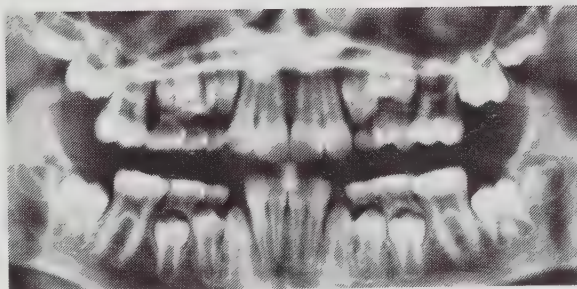
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Canadian Dental Association/Association Dentaire Canadienne



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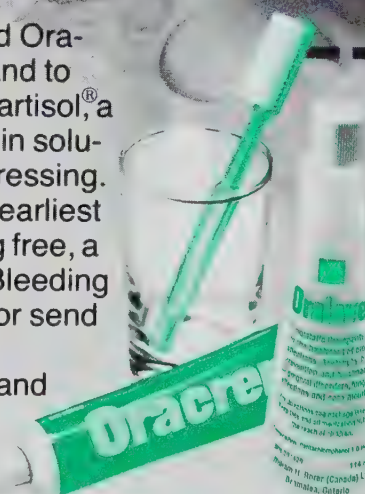
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1. Carter, H.G. and Barnes, G.P.: J. Periodontal. 45:801, 1974



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OTTAWA HEADQUARTERS BUILDING ON SCHEDULE

An up-to-date report from the site of CDA's new headquarters building in Ottawa indicates that work is on schedule and that an early summer completion is anticipated.

All interior and exterior masonry has been completed, windows are installed and the roof is almost complete. Dry wall partitioning has begun and all plumbing, heating and electrical installations are as complete as can be expected at this time. Landscaping this summer will complete the project and the building will be readied for occupancy.

NEW ALBERTA DENTAL ASSOCIATION BUILDING

The Alberta Dental Association has purchased a new ADA building at the corner of 105th Street and 83rd Avenue in Edmonton. It is a three-storey building offering 9,250 square feet of space now occupied by the present owners and various lessees including several dentists. It is white brick both inside and out, trimmed with solid oak inside. Among the amenities are a boardroom of adequate size and a small kitchen plus air conditioning.

No date has yet been decided on for the transfer of possession but the Association estimates it will probably be about January 1, 1977.

ONTARIO REGULATIONS FOR ORAL SURGEONS PROPOSED

The Ontario Health Insurance Plan has recently revealed that one oral surgeon in the province was paid \$144,692 during the last fiscal year and that sixty oral surgeons, in all, billed the province for services rendered to patients in hospitals. Total dental treatment cost to OHIP was \$6 million this year.

Acting Health Minister, Dr. Bette Stephenson, has stated that the government intends to cut dental treatment in hospitals by two-thirds. She feels many dental patients are being treated in hospitals for the extraction of post-eruptive teeth in a manner never intended to be covered by the insurance plan. Discussions have apparently been going forward with the Ontario Dental Association for several months. Regulations now being prepared will stipulate that dental work can be done in hospitals only when it can be shown that the patient needs the medical facilities of a hospital.

223

DENTAL JOURNAL DENTAIRE

LA CONSTRUCTION DU SIEGE SOCIAL A OTTAWA SE POURSUIT SELON LE CALENDRIER

Un rapport de dernière heure qui nous parvient du chantier du nouvel immeuble de l'ADC à Ottawa signale que les travaux se poursuivent selon les plans prévus et que cet immeuble sera achevé au début de l'été. Tous les travaux de maçonnerie intérieurs et extérieurs sont terminés, les fenêtres sont installées et le toit est presque terminé. Le cloisonnement des murs en pierres sèches a commencé et tous les travaux de plomberie et de chauffage ainsi que les installations électriques ont avancé au rythme prévu à ce chapitre. L'aménagement paysager qui commencera cet été complètera les travaux et l'immeuble sera alors prêt à être occupé.

NOUVEL IMMEUBLE POUR L'ASSOCIATION DENTAIRE DE L'ALBERTA

L'Association dentaire de l'Alberta vient d'acquérir un nouvel immeuble situé à l'angle de la 105ème rue et de la 83ème avenue à Edmonton. Il s'agit d'un immeuble de trois étages, d'une surface de 9,250 pieds carrés, occupé par les propriétaires actuels et divers locataires dont plusieurs dentistes. L'immeuble est revêtu de brique blanche à l'extérieur et à l'intérieur, et est agrémenté de garnitures intérieures en chêne massif. Parmi les avantages qu'offre cet immeuble, il faut citer une salle de conseil de bonnes dimensions, une petite cuisine et un système de climatisation.

La date de déménagement n'a pas encore été fixée mais l'Association prévoit qu'elle se situera aux environs du 1er janvier 1977.

PROPOSITION DE REGLEMENTS S'APPLIQUANT AUX STOMATOLOGISTES DE L'ONTARIO

La Régie de l'Assurance-Maladie de l'Ontario a récemment annoncé qu'un stomatologiste de la province a été payé \$144,692 au cours de la dernière année financière et que soixante stomatologistes en tout se sont fait rémunérer par la province pour les services qu'ils ont rendus aux patients dans les hôpitaux. La RAMO a versé en tout 6 millions de dollars cette année pour les traitements dentaires.

Le ministre par intérim de la Santé, Dr Bette Stephenson, vient d'annoncer que le gouvernement a l'intention de réduire les traitements dentaires effectués dans les hôpitaux de deux tiers. Dr Stephenson estime que de nombreux patients dentaires se font traiter dans les hôpitaux pour l'extraction de dents post-éruptives dans un cadre que la Régie d'assurance n'avait jamais prévu. Depuis plusieurs mois déjà, des pourparlers à ce sujet sont en cours avec l'Association dentaire de l'Ontario. Les règlements que l'on envisage stipuleront que le traitement dentaire ne peut être effectué que si l'on peut établir que le patient ne peut se passer des services médicaux d'un hôpital.

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Special Feature

Books — Sperber 257

Regular Features

Letters to the editor 229

Announcements 237

Dentistry in the news 239

Convention news 246

Des actualités dentaires 250

Deaths 244

Articles

Oral Medicine:

Influence of dental status on deaths resulting from food asphyxia — Anderson and Szainwald 265

Dental care for patients with congenital haemorrhagic disorders — Duperon and Dobbs 269

Classified advertising 274

Advertisers' index 278

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Executive Director's position

The accepted resignation of Dr. W. G. McIntosh comes as a distinct shock to all Canadian dentists. Dr. McIntosh has demonstrated his excellence as a practitioner, as a periodontist, a teacher, a researcher, and as an administrator. He has represented dentistry with great distinction with the American Dental Association, the British Dental Association and the Fédération Dentaire Internationale. It is thus staggering to hear of the Executive Council's intent to replace him with a non dentist. This concept may be tenable within provincial bodies, but it is unbelievably narrow in concept when dealing with other international organizations. After all, the president holds office for one year only, but the executive director is an ongoing contact with governments and other organizations.

In concert with the Priorities Subcommittee, the Executive Council has systematically demolished most of the vital functions of the Canadian Dental Association.

1. The vital communication links with the profession through remittance to dentists across Canada of the Proceedings of the Annual Meeting and the Governors' Letter have been eliminated. The quality and informative function of the Journal of the CDA have been seriously impaired through the use of non dentist editors.

2. The powerplay from Ontario and Quebec, who hold the majority of votes, not only on the Priorities Subcommittee, but on the Executive Council itself, has made the CDA a veritable "club" of these two provinces.

3. The Department of Statistics has been disbanded, leaving us completely devoid of any updated statistics with which to face provincial or federal agencies.

4. A moratorium on council and

committee meetings has just recently been lifted.

5. The proposed elimination of the present accreditation mechanism will leave the door wide open for government intrusion into the accreditation field.

6. The president's salary has been increased to \$12,000 per year plus expenses. As well, \$100 per diem and expenses have been implemented for the rest of the Executive Council alone, of all the councils, an inappropriate move, considering what should be present priorities.

7. The dilution of the vital link with the American Dental Association, who, through the years, has provided the CDA with a great deal of aid in many fields, is exceedingly shortsighted. The reciprocity presently existing and provided through the accreditation objectives of both associations is bound to deteriorate, to the detriment of all Canadian dentists.

8. As of this date, the 1976 CDA membership stands at 100 per cent for all provinces except Ontario and Quebec. Although all 1976 memberships may not be complete and returned in Ontario and Quebec, the 1975 figures for Ontario were 2,400 of 3,633 dentists (66 per cent), and for Quebec, 500 of 1,946 dentists (26 per cent).

The CDA's 1976 budget (revised) is \$645,232. The ODA's 1976 budget is \$507,288.

The Annual Meeting of the CDA this year is to be held in Edmonton and is to run concurrently with the convention. Your personal interests can best be served by your attendance and participation in this meeting.

Fellow members of the CDA — TO ARMS!

*James D. Purves, DDS
Toronto*

Executive Council reply

It is indeed a pleasure to have such an esteemed member of the dental profession as Dr. James Purves convey to us all his advice. The interest and concern of all members of the profession in the affairs of the Canadian Dental Association is appreciated deeply. A problem arises in that the advice heard today is often opposite to that proffered yesterday. But, alas, it is the responsibility of the Executive Council to sort it all out on behalf of the Board, in the interim months, to the best of our human ability.

I heartily endorse Dr. Purves' exhortation to attend the Convention and Board Meeting in Edmonton. Such support is welcomed sincerely by the Convention Committee and all members of the Executive Council and Board of Governors. Had such enthusiastic support been forthcoming for the Convention in Newfoundland, the Board might not have had to reconcile a deficit of some \$35,000. Nevertheless — on to Edmonton.

The call, "To Arms" leaves me somewhat disconcerted. It conjures up visions of Madame Lafarge, the guillotine and "Aux Armes, Citoyens!" which does little for my equanimity. I presuppose it is more in the context of "taking up arms against a sea of troubles, and, by opposing, end them." In that attitude I concur, for each of us on the Executive Council, as your interim responsible officers, does regular battle with forms of adversity which plague the affairs of the Association.

Dr. Purves makes reference to several actions (or otherwise) of the Executive Council and in certain cases he is privy to information which I, as a member of Council, do not have. I am grateful for the disclosure.

1. I was not aware that the Proceedings of the Board Of Governors meetings were not available to the profes-



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ion. It is and continues to be my understanding that these "Proceedings" are available upon request, and in two languages, as they have been in years past. I would be exceedingly pleased to be made aware of any policy change in this regard of which I have not been informed.

I am startled and amazed that the Journal, which I was informed was highly esteemed in all quarters, was suffering both in quality and informative material. Journal editors have changed many times over the years and they truly are not an expendable quantity. I wouldn't mind standing in front of the charge of anxious, qualified individuals seeking to replace those we have lost. It is a difficult, highly skilled, taxing and self-disciplining art, craft and science rolled into one position. The names of candidates for the position, suitably qualified and suitably fluent will be welcomed from Dr. Purves or anyone else. The same applies to the *Ontario Dentist*, who, as well, is searching for a suitable person. Our Journal people are superb.

2. The "Club", power-play and majority vote comment is refreshing. I was unaware that, as a representative from Ontario, I held such authority. If Dr. Purves means that, after hours, a few fellows and their wives from all across Canada meet for an exchange of points of view at Board of Governors meetings, at their own expense, then I suppose you could call it a Club. However since the membership changes year by year, there isn't much potential for authoritarianism or the wielding of a big stick.

The number of persons on the Board of Governors is determined by representation by dental population of the various Corporate Members. Ontario and Quebec, even if they had any intent of co-operative action, would certainly be out-voted at the Edmonton Board Meeting if the points they were proposing were not valid and acceptable to all.

The Executive Council consists of a member from British Columbia, one from Alberta, two from Ontario, one from Quebec and one from New Brunswick, plus the President. The best that a power-play from Ontario and

Quebec could achieve in this setting would be a stalemate if all others were in disagreement. It would require the casting of a Presidential vote to break such a tie vote, and I do not recall the President, during my term of office, exercising that prerogative.

As for priorities, it was an Ad Hoc Sub-Committee of Executive Council which made recommendations to Council regarding the affairs of the Association. Council, in turn, will make recommendations to the Board. There were no volunteers to serve on the Sub-Committee and the membership was nominated and elected by the members of Council.

3. The Department of Statistics has not been disbanded — completely. A complete up-date of membership and Journal mailing lists is in progress, and is being computerized. An effort is being made to retrieve CDA statistics which have been within a Government computer in Ottawa. As well, the Executive is endeavoring to compile new data from provincial sources. This latter action is being proposed as the previous material would become available to the Association only with some difficulty and cost.

4. A moratorium was placed on all Council and Committee activities for good reason. The Association was and is in a strained financial condition and a Priorities Sub-Committee was elected to assess the situation. Having reported, the Committee is prepared to make recommendations to the Board for establishment of Association priorities. With Board approval, those activities of the Association that the Board designates will re-commence.

5. A proposal was made by one Corporate Member for a "Professional Council" which would incorporate into its function the "present accreditation mechanism." This proposal was referred to another Ad Hoc Sub-Committee for research, and the report of this Committee will be presented to Council and then to the Board. To make further comment on this proposal would be improper until the Committee report is presented with all facts and opinions from across Canada.

6. An increase in the salary of the

President was proposed in 1974 and approved by the Board of Governors in 1975. Similar action was proposed with respect to per-diem remuneration for the Executive Council. I think both actions are defensible and particularly so within the context of the work load and responsibilities placed upon your elected representatives. If a majority of members feel otherwise then they have a duty to change it. I happen to be on the receiving end of some of this largess so I have a conflict of interest and therefore am proscribed by it, with respect to comment. When my term of office is over, however, I would welcome the opportunity to debate the matter.

7. Dilution of the "vital link with the American Dental Association" was not a voluntary act. In a report to Council by the Executive Director, it was indicated that the ADA found little cause to continue these meetings for the time being. From their point of view, they were consuming of vital time and rarely productive of other than friendly relations. In recent years, there has been little exchange of information or viewpoints and what there was usually was developed before and continued afterwards by other means of communication. The reciprocity will continue and the accreditation program dialogue will go on, but the executive meetings will not — at least for the present.

8. Dr. Purves' comments on membership will be further amplified on reading the 1976 figures in the Journal. Since dentists in both Ontario and Quebec join voluntarily and the rest of Canada by compulsion, there is little common ground for comment. I think Ontario dentists have responded well, but not to my supreme expectations, to voluntary membership.

If Dr. Purves wishes discussion of the budget, he does not indicate so in his letter.

Thus, to conclude, it is a welcomed opportunity for dialogue that Dr. Purves has provided. One could only wish that all dentists in Canada shared his deep concern and enthusiastic support for his national professional Association. The Canadian Dental Association is only as important and only

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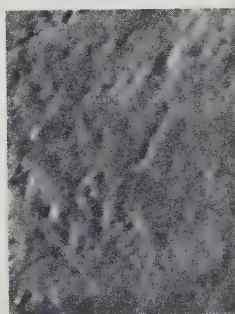
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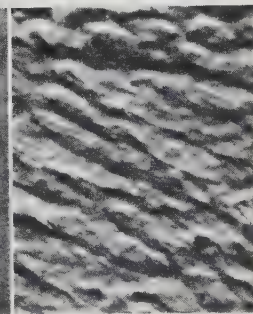
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as effective as its membership permits it to be. It is evident that many persons in the profession put their professional priorities higher than family, office, friends and self-indulgence. The evidence is there in representatives the profession has sent from across Canada to the Board of Governors.

It is therefore heartening to share the confidence of the profession.

Donald L. Rife, DDS,

Toronto, Ontario.

Member, CDA Executive Council.

DDS for Executive Director?

Conspicuously absent from my latest CDA Journal is an advertisement soliciting applications for the position of Executive Director of the Canadian Dental Association. With scarcely three months before a new appointment is necessary, this surely cannot be an oversight, leading one to conclude the position has already been filled or that it will not be opened to a dentist — or both! Horrors! Surely the executive wouldn't consider anyone but a dentist capable of this task. The imagination just can't be worked that hard without a nervous breakdown.

Can you picture our John Doe explaining Canadian dentistry to the World Health Organization, or the FDI? Or the difficulties of capitation with National Health and Welfare? Or group practice organization with the local society in Kelowna?

Can you imagine him representing the organization of dentistry to the individual dentist? Or then how about him making a case for the National Dental Examining Board being or not being represented on the Council of Education? Well then why not a dentist?

It is said that the President of the CDA should be the one to represent Canadian dentistry — and he does; but then his tenure is only one year, he never intends to make it a full-time job during that year and he is not around on a day to day basis. There is no continuing continuity.

Then there is the one about dentists costing too much; but can we afford anything less at the hub of our professional wheel?

Well how about other professional associations not having a pharmacist, accountant, lawyer, or whatever, as their executive director? Who cares! Let us run our association the best way we can! Dentistry cannot afford second best.

Then there's the argument about making an administrator out of a dentist being more improbable than teaching a good administrator the ropes about dentistry. To that one comes the reply that there are dentists well accomplished in many fields outside of dentistry. The highly successful avocations of Canadian dentists would fill more than one journal. Besides, will a layman or a dentist be more loyal to this position?

Yes, we need a dentist — a superman maybe — but most of all a dentist. A dentist with the talking, thinking and professional attitude to understand those he serves — we dentists.

William C. Deacon, DDS

Ottawa

Executive Council reply

Dr. Deacon is perspicacious in noticing the absence of an advertisement soliciting applications for the position of Executive Director of the Canadian Dental Association. As a member of the Executive Council of CDA, who was overwhelmed by the resignation of the present Executive Director on the morning of the second day of a two-day meeting in November 1975, the matter has top priority.

The Executive Council has, as yet, not been able to determine the precise requirements of the position of Executive Director as they relate to the new environment of a headquarters in Ottawa. Therefore, Mr. Lloyd Stevenson has been appointed Acting Executive Director of the Association. The appointment is to be effective June 1, 1976 and is to be reviewed within one year. It is not an easy matter to move an association headquarters to a completely new location with an almost complete staff turnover. Mr. Stevenson will require the assistance and generous support of everyone in the profession to accomplish this difficult duty.

When an opportunity to evaluate the

requirements of the position of Executive Director is presented, following a reasonable period of time in Ottawa, the whole matter will be reviewed with intense scrutiny. It would be wrong at this time to conclude anything about the position or the filling thereof at this juncture. The matter will be under continual review and consideration by the Executive Council. When the time comes, it is important, in my estimation, that the Association hire the right person for the position.

To my knowledge, there have been no parameters ascribed to the task of Executive Director which indicate that either he must or must not be a dentist. It would be unfair to the Association if such limitations were placed, only to find that the action had eliminated qualified worthy applicants.

As for applicants for the position, when the qualifications for application have been determined, all who qualify and apply will be considered. The position has not been filled and it will be open to any qualified applicant. The needs of the Association and the capabilities of the applicant must surely be what determines who is employed.

Both Dr. Deacon and Dr. Purves make reference to information which has led them to believe in the "Executive Council's intent to replace [the present Executive Director] with a non-dentist," to quote Dr. Purves. I would indeed be pleased to have the source of this misinformation disclosed in this Journal, if such a source exists.

Dr. Deacon's polemics with respect to dentists are impressive; however, for one, I intend to keep an open mind on the subject with the objective of acceding to the best interests of the Association. Dr. Deacon's application for the position will be welcomed equally with all who possess the essential qualifications. Replacing someone having Dr. McIntosh's qualifications, dedication, integrity, lucidity, charisma and magnanimity will not be an easy task and will not be undertaken lightly.

Donald L. Rife, DDS,

Toronto, Ontario.

Member, CDA Executive Council.

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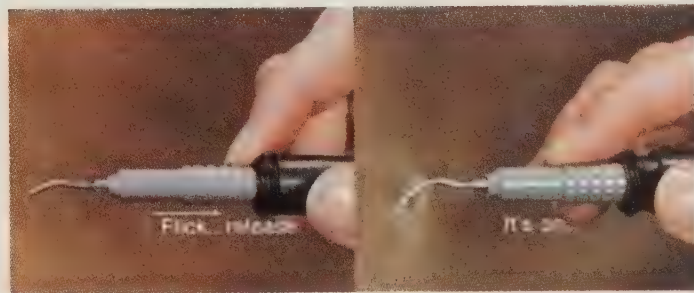
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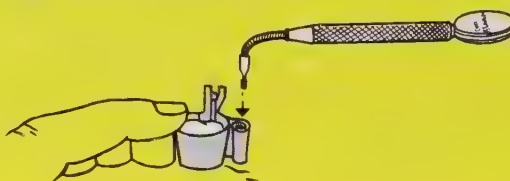


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Announcements/Avis

Information about other meetings or courses, including American continuing education courses, may be obtained by writing to CDA headquarters.

Canadian Dental Association
1976, Edmonton, Alta, Sept. 12-15.

Fédération Dentaire Internationale
1976, Athens, Greece, Sept 26-Oct 2;
1977, Toronto, Oct 22-28.

Canadian Meetings

Ontario Society of Clinical Hypnosis,
at Royal York Hotel, Toronto. May
21-23, 1976. Dr. D.L. Stewart, 135
Division St., Guelph, Ont. N1H 1R7.

**Northwest Academy of Dental
Medicine**, at the Empress Hotel, Vic-
toria, B.C. May 27-30, 1976. G.H.
Underwood, 601 Portland Medical
Center, 511 SW Tenth Ave, Portland,
Oregon 97205, USA.

**Atlantic Provinces Dental Conven-
tion**, at Fredericton, June 6-9, 1976.
P. F. Manson, 564 Queen St, Freder-
icton, N.B. E3B 1B9.

**The Association of Canadian Facul-
ties of Dentistry / L'Association des
Facultés Dentaires du Canada**,
Conference on Dental Education and
Research, at the University of Alberta,
Edmonton. June 14-16, 1976. Dr.
G.W. Myers, 3042 Dentistry Phar-
macy Centre, University of Edmonton,
Edmonton, Alta. T6G 2H7.

Canadian Dietetic Association, at
Edmonton. June 14-17, 1976. Cana-
dian Dietetic Assn, 1393 Yonge St, To-
ronto, Ont. M4T 1Y4.

**International Association of Oral
Myology**, at Skyline Hotel, Ottawa.
June 17-19, 1976. Ms. Z. Strock, P.O.
Box 2201, Denton, Texas 76201,
USA.

Canadian Society of Oral Surgeons,
at Halifax. July 24-27, 1976. D.J.
Murphy, 1773 Beech St., Halifax,
N.S.

Canadian Occlusion Symposium, at
Chateau Lacombe, Edmonton. Sept
12-13, 1976. J.N. Nasedkin, #415,
925 West Georgia, Vancouver, B.C.
V6C 1R5.

**Montreal Dental Club Pre-
Convention Seminar**, at Montreal.
Nov 13-14, 1976. Miss M. Komar-
nicka, 4166 St. Catherine St. W.,
Montreal 215, Que.

Montreal Dental Club Fall Clinic, at
Montreal. Nov 15-17, 1976. Miss M.
Komarnicka, 4166 St. Catherine St.
W., Montreal 215, Que.

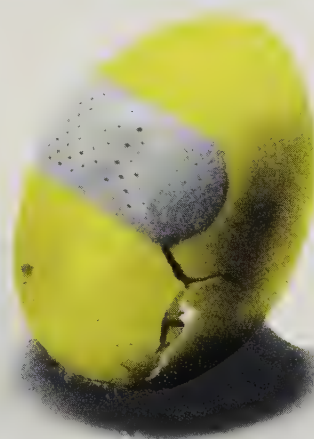
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dentifrices, it is reassuring to know that this is not a problem with Colgate MFP.

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Canadian Dental Association

CDA EXECUTIVE COUNCIL NAMES ACTING EXECUTIVE DIRECTOR



Lloyd A. Stevenson

The Executive Council of the Canadian Dental Association has announced the appointment of Lloyd A. Stevenson as Acting Executive Director of the Association. The appointment is effective June 1, 1976.

Mr. Stevenson has served as Director of Administration for CDA since May, 1975. Prior to that he was Vice President of Operations for Villacentres Ltd., a multi-million dollar Canadian nursing home chain.

A graduate of the University of Toronto's course in Institutional Management, Mr. Stevenson also studied psychology and sociology at McMaster University, and philosophy at the University of Western Ontario. He is a Fellow of the American College of Nurs-

ing Home Administrators and a certified Canadian Public Health Inspector.

Mr. Stevenson has more than 20 years' experience at senior levels of administration and management in the health care field. He is a past president of the Ontario Nursing Home Association, a past chairman of the Institute in Nursing Home Care, and Governor of Canada for the American College of Nursing Home Administrators. He is also a member of the following organizations: the American Geriatrics Society; the American Nursing Home Association; the Board of the Canadian Council of Hospital Accreditation for Extended Care Facilities in Canada; and the Toronto Board of Trade. In addition, he was awarded an honorary

membership by the Nova Scotia Nursing Home Association and an honorary life membership by the Ontario Nursing Home Association.

Mr. Stevenson has had considerable experience in negotiating union contracts and as an arbitrator in the labor-management field. He is well known as a guest speaker at the conventions of many major associations in the health care field and has served as a guest lecturer for the University of Ottawa's Masters Degree Program in Hospital Administration.

His experience in negotiating with governments at the deputy minister and ministerial levels will undoubtedly be of value when the Association moves to its new headquarters in Ottawa.

New AMA pamphlet supports fluoridation

A new pamphlet published by the American Medical Association strongly supports fluoridation as a practical, effective, inexpensive and safe public health measure. The pamphlet is entitled "Efficacy and Safety of Fluoridation".

After a thorough evaluation of the available scientific evidence, the publi-

cation was developed by the AMA Council on Foods and Nutrition. It details the effect of fluoridation on body organs and disease, and concludes that "fluoridation of public water supplies at the recommended level is a desirable and safe health measure for total populations". All communities are urged to adopt fluoridation. The 18-page pam-

phlet contains a list of 129 references to support the findings.

Single copies of the pamphlet are available without charge from the AMA Council on Foods and Nutrition, 535 North Dearborn St., Chicago, 60610. There is a charge for multiple copies.

W.J. JOHNSTON AWARDED THE ORDER OF CANADA

Wilfred J. Johnston of Montreal was awarded the Order of Canada during the October 1975 investiture in Ottawa. He is the first dentist in Canada to be so honored.

Dr. Johnston is a 1938 dental graduate of McGill University. Following a year of graduate study in the Department of Pharmacology at McGill, he took further graduate studies at the University of Michigan, the University of Pennsylvania and the University of Illinois. He then returned to McGill as a demonstrator in dental pharmacology.

From 1940 to 1945, Dr. Johnston served with the Royal Canadian Dental Corps. After the war, he again returned to McGill to take up his new duties as

chairman of the Department of Endodontics and Dental Pharmacology and Therapeutics. At the same time, he re-established his private practice and created, at the Queen Mary Veterans' Hospital, a unit for plastic reconstruction. The unit was moved to McGill in 1968. In addition to all these duties, he was appointed director of the Department of Dentistry and the Cleft Palate Team of the Montreal Children's Hospital.

In 1973, Dr. Johnston was awarded the rank of Professor Emeritus, Faculty of Dentistry, McGill University. He is also an honorary member of the Montreal Dental Club.

INTERNATIONAL RESEARCH GROUP PRESENTS AWARD TO D.C. SMITH

The International Association for Dental Research recently presented its Wilmer Souder Award to Dennis C. Smith of Toronto in recognition of his contributions to dental materials research. The Award is presented annually by the Dental Materials Group of IADR as the "highest honor in the field of dental materials."

Dr. Smith is professor and chairman of the dental materials science department of the University of Toronto's Faculty of Dentistry.

Dr. Smith received a B.Sc. special degree in chemistry from the University of London's Chelsea College of Science and Technology and a Ph.D. from the University of Manchester.

Prior to joining the University of Toronto staff in 1969, he was a lecturer in dental materials at the University of Manchester and was also a visiting associate professor in dental materials at Northwestern Dental School.

He is a fellow of the Royal Institute of Chemistry and the first associate member of the British Dental Association. He is chairman of the Canadian Dental Association's Committee on Dental Materials and Devices and a consultant to the Commission on Dental Materials of the Fédération Dentaire Internationale.

Dr. Smith is the author of three books and over 90 scientific papers.

B.J. Sessle receives Oral Science Award

Barry J. Sessle, an associate professor with the University of Toronto's Faculty of Dentistry, was recently selected as the 1976 recipient of the prestigious Basic Research in Oral Science Award presented by the International Association for Dental Research.

The IADR, with a membership of 4,200 dental researchers in 53 countries, has as its principal objective the advancement of dental research on an international level. The Oral Science Award has been given annually since 1963 to a distinguished scientist under the age of 36 who has accomplished outstanding basic research in an area of the natural sciences with an important relationship to oral biology.

Dr. Sessle's research has focused on: orofacial pain, touch, and temperature; general sensory neurophysiology and sensory perception in man and animals; neural mechanisms of trigeminal neuralgia and acupuncture; electromyographic and neurophysical aspects of orofacial motor function and their clinical implications in mastication, swallowing, tongue thrustings; sudden infant death and the influence of sensory information from upper respiratory tract and orofacial regions on respiration and brain stem neurons.

A native of Sydney, Australia, Dr. Sessle received his Ph.D from the University of New South Wales. Prior to his arrival in Toronto in 1971, he was a visiting associate at the National Institute of Dental Research in Maryland. Dr. Sessle has also served as a teaching fellow at the School of Physiology, University of New South Wales in Sydney and as a scholar of the Dental Health Education and Research Foundation, University of Sydney.

New executive elected

The Quebec Association of Periodontists recently elected its executive for the 1976 term. Members are: Jean Turgeon, president; Marvin Stutman, vice-president; Samuel Galperin; secretary; and, Edward Shore, treasurer. Mel Hershenfield is past president.

1976 ANNUAL MEETING CDA BOARD OF GOVERNORS

The 1976 annual meeting of the Board of Governors of the Canadian Dental Association will be held September 12-14 at the MacDonald Hotel, Edmonton, Alberta. The meeting is open to all members of the Association.

This year the National Convention will run concurrently with the Board meeting, beginning with the Opening Ceremonies Sunday evening, September 12, and continuing through Wednesday, September 15.

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¹ Novak, A.J.: *Oral Surg.* 34:34, July, 1972.



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FOUR INTERNATIONAL PRIZES TO BE AWARDED AT FDI CONGRESS IN TORONTO

Four international prizes will be awarded to distinguished dentists during the 65th Annual World Dental Congress of the *Fédération Dentaire Internationale*, to be held in October 1977, in Toronto.

One is the newly established Johnson and Johnson Preventive Dentistry Award Program. A grant from the Johnson and Johnson Dental Products Company of New York and its affiliates has made it possible for the FDI to establish international preventive dentistry awards to encourage the development of new preventive approaches to dental health. A top award of two thousand dollars will be given in each of three categories: community programs, professional education, and research. This awards program will be conducted every three years.

Any dentist, dental auxiliary, dental student or student auxiliary may enter. Additional information on the awards program may be obtained by writing to: Dr. J. E. Ahlberg, FDI Executive Director, 64 Wimpole St., London, England, W1M 8A1. Entries must be received by April 30 and will be judged

by a jury during the FDI General Assembly in Athens in September, 1976.

The three other awards are presented every five years for outstanding work in the field of dentistry.

The International Miller Prize is, according to the regulations, "awarded to one, or at most three, persons who have rendered the most eminent services to dentistry." For example, those who have made the greatest contribution to dental research, clinical dentistry or academic dentistry, or who have raised the status of the dental profession. The prize consists of a medal and a diploma.

The Georges Villain Prize, which consists of a bronze medal, is awarded for outstanding contributions in orthodontics or prosthodontics.

The fourth award, the Jessen Fellowship in Children's Dentistry, is designed to assist developing countries to improve their dental health services for children by allowing a young dentist to visit another country to study its approach to children's care. The value of the fellowship depends upon the distances involved, but will probably not be less than fifteen hundred dollars.

ENTRIES INVITED FOR ADA COMMUNITY PREVENTIVE DENTISTRY AWARD

The American Dental Association is inviting the submission of entries for its first Community Preventive Dentistry Award. This award is designed to recognize those who have developed and implemented preventive dentistry projects to benefit groups in their communities. The winner will receive \$2000 and meritorious entries will receive \$300.

The Award, funded by Johnson & Johnson, was formerly the ADA Preventive Dentistry Award and included two other categories in addition to community programs. This year the focus will be solely on preventive approaches used for community educa-

tion or public information purposes, such as primary and secondary schools, special population groups and public media. Eligibility is not limited to dental personnel, but is open to any individual or organization responsible for creating and implementing a community preventive dentistry project.

Entry applications and information brochures are available from: ADA Community Preventive Dentistry Award, 211 East Chicago Ave., Chicago, Ill. 60611. Entries must be submitted through a dental association or society, a dental school or a recognized research institute, and must be received by August 15, 1976.

Dental assistant educators' conference

The Canadian Dental Nurses and Assistants Association's Council on Certification has announced a Workshop Conference to be held July 4-6, 1976, in Edmonton. Subject of the Conference will be "Future Considerations for Dental Assistant Educators in Canada."

The Conference will be concerned with the exchange and interaction of information and ideas among those involved in the field of education directed towards dental assisting. The three major objectives of the conference are defined as follows:

- To examine the implications which the Canadian Dental Association's proposal on the level system of training dental auxiliaries will have on the schools of dental assisting in Canada. Discussion will cover such topics as core curriculum and curriculum content of levels.
- To establish inter-communication among schools of dental assisting in Canada. Teaching methods and availability of reference materials and audiovisual aids will be examined.
- To examine the feasibility of portability of graduates between provinces.

Each of these areas of concern will be discussed in small round-table groups headed by chairpersons.

Anyone connected with dental auxiliary educators is invited to attend this Workshop Conference. Its subject matter will be of interest to dental assistants, executives of all local, provincial and national associations, dental hygienist representatives, dentists, dental educators, educational material sales personnel and government representatives.

The conference fee of \$70.00 includes registration, a wine and cheese party, three luncheons and two dinners. Pre-registration is required by May 26, 1976 with a cheque or money order made payable to Dental Assistant Educators' Conference. Registration should be mailed to: Conference Organization Committee, Dental Assisting Department, Northern Alberta Institute of Technology, 11762 — 106 Street, Edmonton, Alberta. T5G 2R1.

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SPECIAL PROSTHODONTICS FELLOWSHIP EXAMINATION TO BE HELD IN JUNE '77

Due to the recent re-definition of the term "prosthodontics," the Royal College of Dentists of Canada is holding a special examination for Fellowship for those who can qualify. This special examination will be held during the week of June 20, 1977, and will not be repeated.

Forms may be obtained from the College's office: Suite 614, Medical Arts Building, 170 St. George St., Toronto, M5R 2M8. Applications should be submitted to the RCD(C) office by December 1, 1976.

The special examination will consist of the following:

1. An oral examination of approximately 90 minutes, covering the general field of prosthodontics and the specific field of restorative dentistry (fixed prosthodontics and operative dentistry). Topics included will be: occlusion; the relationship of the periodontium to restorative procedures; clinical methodology; dental materials used; long term treatment philosophies employed; and, relevant basic science of the discipline.

2. The presentation of two cases of completed treatment in which the principles of advanced restorative dentistry are illustrated. Records for these cases

must include: mounted diagnostic and final casts; pre-and-post-operative full mouth radiographs; written reports describing the rationale and sequence of treatment along with color pictures of the clinical stages of treatment. The candidate is expected to justify his or her use of techniques, materials and instrumentation.

Eligibility for candidates to take this examination is as follows:

1. An individual trained in a specialty area prior to 1965 and not previously eligible as a candidate for Fellowship examination (initial interim or otherwise).

2. Individuals engaged in the clinical practice, teaching and/or research in a specialty area for a minimum of 10 years prior to 1965, without specialty training, who have made significant contribution to this specialty field (on the recommendation of peers and/or provincial specialty recognition and the acceptance of the Credentials Committee) and who were not previously eligible for examination.

The Credentials Committee, with representation from the specialty, will determine eligibility.

There will be three examiners, two from Canada and one from the United States, for this special examination.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on March 31, 1976:

<i>Guaranteed Fund</i>	\$12.444;
<i>Fixed Income Fund</i>	\$16.543;
<i>Common Stock Fund</i>	\$ 28.25.

Total assets (market value) of the plan were \$23,868,676.

The following portfolio purchases and sales occurred during the preceding month: Bought, 4,000 shares Alcan Aluminum, 5,200 shares Bell Canada, 5,000 shares Cominco, 10,000 shares Inter-Provincial Pipeline, 10,000 shares Shell Canada Ltd. Class A,

\$100,000 IAC Ltd. bond, \$200,000 Pacific Pete Ltd. bond, \$500,000 Bank of Nova Scotia note, \$100,000 Aluminum Company of Canada note, \$500,000 Noranda Mines note. Sold, 3,000 shares Bank of Nova Scotia, 6,000 shares Placer Development, 7,000 shares Hiram Walker, \$200,000 International Nickel Company note, \$300,000 Provincial Bank of Canada note, \$100,000 Simpsons Sears Acceptance note.

For further information write to: CDA-sponsored Pension and Insurance Plans, 14 Madison Ave., Toronto, Ont. M5R 2S1.

DEATHS

Campbell, Edwin Harold. 85. Toronto. Royal College of Dental Surgeons of Ontario, 1914. 13-3-76. Survived by Violet (wife).

Fraser, James Ernest. 84. Shaunavon Sask. Royal College of Dental Surgeons of Ontario, 1920. 21-3-76. Survived by Muriel (wife); Bob and John (sons); Mrs. Jean Hanna (daughter).

French, George Ernest. 88. Niagara Falls. Royal College of Dental Surgeons of Ontario, 1909. 25-3-76. Survived by Anna (wife); Mrs. Mary Thompson (daughter).

Giguere, Adelard. 73. St-Lambert, Que. University of Montreal, 1925. 26-2-76. Survived by Madeleine (wife); Paul and Raymond (sons); Mme. Louise Besner (daughter).

King, George Alfred. 78. Milton, Ont. Royal College of Dental Surgeons of Ontario, 1923. 31-3-76. Survived by Florence (wife); Dr. John K. King (son); Mrs. Mary Muir and Mrs. Lenore Young (daughters).

Langtry, John Harold. 79. Fort William. Royal College of Dental Surgeons of Ontario, 1923. 2-3-76. Survived by Helen (wife); James (son); Mrs. F. R. Remus and Mrs. R. H. Apsey (daughters).

Laurin, Carroll Edouard. 75. Hull, Que. University of Montreal, 1925. 16-3-76. Survived by Alice (wife); Carroll, Guy and John (sons); Mme Marie de Bouvries (daughter).

Moore, William Robert J. 67. Toronto. University of Toronto, 1937. 12-3-76. Survived by Isobel (wife); John (son); Jane, Donna and Perri (daughters).

Race, Wilfrid Watson. 78. Brantford. Royal College of Dental Surgeons of Ontario, 1920. 17-3-76. Survived by Alice (wife); John and Wilfrid (sons); Mrs. Mary Norton (daughter).

Ringuet, Lucien. 81. La Tuque, Que. University of Montreal, 1918. March 1976. Survived by Dr. Pierre Ringuet (son).

Gordon Swann receives Alberta Service Award

Gordon Swann, former chairman of the University of Calgary's Board of Governors, was presented with the Government of Alberta Service Award by Premier Peter Lougheed during a special dinner held in November. Two awards were presented. The second went to Dr. Richard G. Forbis, head of the University's Archeology Department.

These awards, presented annually, recognize Albertans whose outstanding service in a professional-occupational or voluntary capacity has had province-wide impact.

A Calgary orthodontist, Dr. Swann was first appointed to the University's Board of Governors in 1968 and served for six years, including three as vice-chairman. From February 1974 to June 1975 he was chairman. The central mall on the Calgary campus, a U of C Centennial project, has been named the Swann Mall as a tribute to his outstanding contributions to university life. The Students Union of the University also recognized Dr. Swann's contributions with the creation of an annual scholarship to be presented in his name.

UBC provides consultative radiological service for practising dentists

The University of British Columbia's Department of Oral Medicine, in conjunction with Dr. Harry M. Worth, now provides a consultative radiological service for members of the dental profession.

Dentists can mail radiographs and the accompanying clinical details to Dr. A. Yule, Department of Oral Medicine, Section of Radiology, University of British Columbia. A written report, along with the original films, will be mailed back. There is no charge for this service.

In addition to providing a service for practising dentists, this program is also expected to generate interesting material for discussion at student seminars.

JOURNAL OF THE CANADIAN DENTAL ASSOCIATION JOURNAL DE L'ASSOCIATION DENTAIRE CANADIENNE

SCIENTIFIC EDITOR REDACTEUR SCIENTIFIQUE

A vital editorial post within the Journal of the Canadian Dental Association. Duties include assessment of submitted manuscripts, referral to referees, preparation of manuscripts to Journal standards and format in co-operation with authors.

Applicants should have a general or specialty degree in dentistry, germane editorial experience and/or personal scientific writing expertise which could be applied to the editorial role. Faculty of Dentistry contacts and broad, up-to-date knowledge of the dental field are essential.

This is a part-time position which can be handled from home or practice with secretarial assistance. Remuneration is negotiable, commensurate with qualifications and experience.

Important poste de rédacteur au sein du Journal de l'Association dentaire canadienne. Les fonctions comprennent l'évaluation de manuscrits soumis, leur transmission aux arbitres, en collaboration avec les auteurs, la préparation des manuscrits selon les normes et le format du Journal.

Les candidats doivent posséder un diplôme général ou spécialisé en art dentaire, une expérience pertinente dans le domaine de la rédaction ou une expertise personnelle dans le domaine de la rédaction scientifique pouvant s'appliquer au poste de rédacteur. Le candidat doit avoir des contacts dans les facultés de médecine dentaire ainsi que des connaissances approfondies des derniers développements dans le domaine dentaire.

Il s'agit d'un emploi à temps partiel, pouvant être exercé chez soi ou dans un cabinet avec l'aide d'une secrétaire. Rémunération à négocier en fonction des qualifications et de l'expérience.

Interested applicants are invited to submit a complete resume before May 31 to:

Les candidats intéressés sont invités à soumettre un curriculum vitae complet avant le 31 mai au:

**CDA Executive Council/Conseil Exécutif de l'ADC
234 St. George St., Toronto, Ontario M5R 2P2**

EDMONTON: HOST TO THE '76 CDA NATIONAL CONVENTION

The capital of Alberta takes its name from Fort Edmonton or, as it was first known, Edmonton House. Built in 1795 for the Hudson Bay Company it was named for Edmonton, Middlesex England, now a suburb of Greater London.

As the fur trade declined and the great buffalo herds diminished, the little settlement turned to an agricultural economy. The railroad arrived in 1891 and, with it, immigrants from the British Isles, the United States and Eastern European plains. The Klondike gold rush of '98 added to the population increase, and in 1904 Edmonton was incorporated as a city. It became a capital city the following year, as Alberta achieved provincehood, and in 1908 it became a university city as well. Edmonton was a typical frontier boom town in the following years with real estate speculation running rampant. The land bubble burst at the outbreak of the First World War. The years between the wars saw growth grind to a halt. However, brighter times were ahead. In 1947 Imperial Oil Limited's discovery well blew in at Leduc and started a train of events that propelled Canada into the big leagues of the world's oil nations. Edmonton was

right at the centre of the oil play that ensued and the refining and chemical companies, pipe line and service companies that followed the drilling rigs settled in Edmonton.

Edmonton today is the fourth largest city in Canada. A plus for the city is the fact that it is virtually smog free thanks to natural gas being the major energy source.

Evidence of the newness of the city is everywhere, from the high rise apartment blocks along the river to the neatly laid out civic centre — the city hall, art gallery, public library and Supreme Court building grouped around Churchill Square.

Although the city core is new, the people retain a strong attachment for the past. In the heart of the city, a stone's throw from the modern new Hotel Lacombe, is preserved the McDougall United Church, the first building erected outside the walls of old Fort Edmonton. Now a museum, it commemorates the work of Rev. George McDougall, revered for his efforts at keeping peace between the whites and Indians.

Edmonton: the city with a difference.



PRE-REGISTRATION DRAW

Register today for the Canadian Dental Association's National Convention to be held September 12-15 in Edmonton and win a flight for two to Athens for the 64th Annual World Dental Congress.

To be eligible for the draw your registration must be in before July 31, 1976.

Don't delay! Fill out the registration form in the back of this issue and send it in today.

Elk Island Park

See the wild buffalo roaming just thirty miles east of Edmonton. Drive your car through the country's largest fenced animal preserve and marvel at the herds of elk and moose wandering through the woods and plains, free and unmolested. Scattered over the whole area are small, island-dotted lakes, providing ideal nesting grounds for thousands of wild duck and geese.

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GRIEVE MEMORIAL LECTURE

For the past 25 years, one of Canadian dentistry's outstanding educational efforts has been the annual presentation of the Grieve Memorial lectureship program, conceived, organized and sponsored by the Canadian Association of Orthodontists in honor of one of its own illustrious members, George W. Grieve.

One of Canada's pioneer orthodontists, Dr. Grieve practised in Toronto from 1900 to 1949. In addition to being a recognized leader in his field, Dr. Grieve was one of the first to advocate the extraction of teeth to facilitate orthodontic treatment. He continued to advocate this heretical attitude in the face of great opposition and was finally rewarded by his colleagues' total acceptance of the concept.

Following his death, his fellow members of the Orthodontic Society began the presentation of its annual lecture. This first lecture was given in 1949 by Dr. Gerald Franklin of Montreal and was presented in conjunction with the Canadian Dental Association's Annual Convention. Since that time, many of the most outstanding contributors in the field of orthodontics have had the honor of pres-



George W. Grieve



Richard A. Reidel

enting the Grieve Memorial Lecture.

The 1976 presentation will be given by Richard A. Reidel, Chairman and Professor of Orthodontics at the University of Washington in Seattle. Appropriately, the title of his presentation will be "Why extraction in relation to orthodontic treatment?" The subject matter will be aimed at the general practitioner as well as the specialist. Dr. Reidel feels that the sophisticated dental patients of today require of general dentists the ability to discuss treatment,

answer questions and make intelligent referrals, if not to carry out actual treatment.

Dr. Reidel is an internationally known authority in orthodontics, having served as a researcher, lecturer, teacher and writer in the field of orthodontics since 1948. He has lectured and conducted postgraduate courses throughout Canada, the United States, South America and Europe. He continues as a prolific contributor to text books and periodicals.

Prosthetic dentistry

Two of the more difficult aspects of prosthetic dentistry will be examined in a presentation by Major E. D. Cragg, head of the removable prosthodontics department of the Canadian Forces Dental Services School in Borden, Ontario.

Major Cragg will deal with the distal extension removable partial denture and the immediate denture. In considering the distal extension partial, denture design, impression technique and occlusion will be discussed with a view towards demonstrating a means of controlling occlusal stress. Features of the discussion of immediate dentures will be the handling of both pre-treatment and treatment phases along with improved impression technique and immediate overlay denture technique.

Perspective in periodontics

"Perspective in periodontics" is the theme of a joint presentation to be made by Lieutenant-Colonel N. H. Andrews and Major D. G. Jones of the Canadian Forces Dental Services.

Their presentation will deal with examination procedures, case documentation and pertinent diagnostic criteria leading to the establishment of a workable treatment plan. Comparisons will be developed between normal tissues and those suffering inflammatory periodontal disease. Treatment sequencing and therapeutic modalities will be illustrated and discussion will include some of the limitations of periodontal therapy.

Lieutenant-Colonel Andrews, a den-

tal graduate of Dalhousie University, is currently chief instructor at the Canadian Forces Dental Services School in Borden, Ontario. He acquired his diploma in periodontology after two years of postgraduate training at the U.S. Army Institute of Dental Research, Georgetown University, and at Walter Reed General Hospital in Washington.

Major Jones is a dental graduate of the University of Manitoba and also took his postgraduate training in periodontics at Walter Reed Army Medical Center and Georgetown University. A distinguished lecturer, consultant and instructor in his specialty, Major Jones is currently attached to the Canadian Forces Base in Trenton, Ontario.

Dental identification by x-ray detectable inserts

"Dental identification by x-ray detectable inserts" is the title of a presentation to be given by Philip L. Samis of Montreal. Dr. Samis' new system consists of inserts of ceramic chips placed in the teeth at the time of regular restorative dental treatment. The inserts carry information recorded in a micro-miniature mode. At post-mortem, the only requirements for identification of the person are a 10x — 20x microscope or magnifying lens and the usual dental x-rays.

Dr. Samis has presented his system to forensic science organizations in Europe and North America, as well as to the combined meeting of the American Dental Association and the Fédération Dentaire Internationale in Chicago in 1975.

Exciting social program

An exciting social program is being planned for the CDA National Convention in Edmonton. Activities will get underway on Sunday, September 12, with the opening ceremonies in the Alberta Room of the Chateau Lacombe. Following the official greetings of Association officials and other dignitaries, delegates will be treated to an hour of delightful entertainment, after which they will be able to renew old friendships and dance the rest of the evening away to romantic music.

On Monday evening, a re-enactment of Klondike Night will be featured, complete with rental costumes, the spirit of the gold rush days and a special western steak dinner. The evening's entertainment will include the antics of Klondike Kate and Klondike Pete and the music of the Tailgate Jazz Band.

The highlight of the social program will take place on Tuesday evening with the annual President's Ball. The banquet will be followed by entertainment and dancing.

The Installation Luncheon will be held Wednesday at the Edmonton Plaza Ballroom. Since seating for this occasion is limited, delegates are urged to book their reservations early.



COSTUMES FOR KLONDIKE NIGHT

Get into the swing of things by attending Klondike Night in costume!

Rental costumes are available at \$10 each. For the clever seamstress, patterns are available from Simplicity, Butterick, McCall's and Vogue. Or perhaps you have a bridesmaid dress at the back of your closet which can be dressed up with ruffles, lace, ribbons or flowers and complemented with costume jewelry. Sew some ruffles on an umbrella, add plumes, flowers or bows to an old straw hat, drag out those long gloves in the back of your drawer and you're all set.

For the men — beards, bowler hats, top hats and canes, ruffled shirts, western style bow ties and elastic arm bands will all be the height of fashion.

Whether you rent, sew, renovate or buy, Klondike Night will be more fun in costume.

LE CONSEIL EXECUTIF DE L'ADC NOMME UN DIRECTEUR EXECUTIF PAR INTERIM

Le Conseil exécutif de l'Association dentaire canadienne annonce la nomination de M. Lloyd A. Stevenson à titre de directeur exécutif par intérim de l'Association. Cette nomination entrera en vigueur le 1er juin 1976.

M. Stevenson a servi à titre de directeur administratif de l'ADC depuis mai 1975. Avant cette date, il était vice-président des opérations pour Villacentres Ltée, une chaîne de maisons de convalescence canadiennes dont le chiffre d'affaires s'élève à plusieurs millions.

Diplômé de la faculté d'administration institutionnelle à l'Université de Toronto, M. Stevenson a également fait des études de psychologie et de sociologie à McMaster University, ainsi que la philosophie à l'University of Western Ontario. Membre (Fellow) de l'American College of Nursing Home Administrators, il est également in-

specteur attitré de la Santé publique canadienne.

M. Stevenson possède plus de 20 ans d'expérience aux niveaux supérieurs d'administration et de gestion dans le domaine des soins de la santé. Il est ancien président de l'Institute in Nursing Home Care et Gouverneur du Canada au sein de l'American College of Nursing Home Administrators. Il fait également partie des organismes suivants: American Geriatrics Society (la Société américaine de gériatrie); American Nursing Home Association (l'Association américaine des maisons de convalescence); Board of the Canadian Council of Hospital Accreditation for Extended Care Facilities (Bureau du Conseil canadien pour l'accréditation des hôpitaux dispensant des soins prolongés au Canada); et la Chambre de Commerce de Toronto. En outre, l'Association des maisons de convales-



Lloyd A. Stevenson

cence de Nouvelle-Écosse lui a décerné le titre de membre honoraire et celle de l'Ontario lui a accordé celui de membre honoraire à vie.

M. Stevenson possède une expérience considérable en ce qui concerne la négociation de contrats collectifs et en qualité d'arbitre dans le domaine des relations ouvrières. Conférencier renommé aux congrès d'une foule d'associations importantes du domaine des soins de la santé, il a servi en qualité de chargé de cours invité au programme de maîtrise en gestion hospitalière à l'Université d'Ottawa.

L'expérience qu'il possède dans le domaine de la négociation avec le gouvernement aux niveaux sous-ministériel et ministériel sera de toute évidence extrêmement précieuse lorsque l'Association déménagera à son nouveau siège social à Ottawa.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 mars 1976:

<i>Fonds avec garantie</i>	\$12.444;
<i>Fonds à revenu fixe</i>	\$16.543;
<i>Fonds d'actions ordinaires</i>	\$ 28.25.

L'avoir total (valeur marchande) du régime se montait à \$23,868,676.

Au cours du mois précédent, les transactions ont été les suivantes: achat, 4,000 shares Alcan Aluminum, 5,200 shares Bell Canada, 5,000 shares Cominco, 10,000 shares Inter-Provincial Pipeline, 10,000 shares Shell Canada Ltd. Class A, \$100,000 IAC Ltd. bond, \$200,000 Pacific Pete Ltd. bond, \$500,000 Bank of Nova Scotia note, \$100,000 Aluminum Company of Canada note, \$500,000 Noranda

Mines note. Vente, 3,000 shares Bank of Nova Scotia, 6,000 shares Placer Development, 7,000 shares Hiram Walker, \$200,000 International Nickel Company note, \$300,000 Provincial Bank of Canada note, \$100,000 Simpsons Sears Acceptance note.

Pour de plus amples renseignements, veuillez écrire à CDA-sponsored Pension and Insurance Plans, 14 Madison Ave., Toronto, Ont. M5R 2S1.



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CONTRAINDICATIONS: Gastrointestinal ulceration and sensitivity to any of the components.

WARNINGS: Salicylates increase the effects of anticoagulants. Caution is necessary when salicylates and anticoagulants are prescribed concurrently. Also, salicylates may depress the concentration of prothrombin in the plasma. Large doses of salicylates may affect insulin requirements of diabetics. Salicylates may potentiate sulfonylurea hypoglycemic agents. Analgesic abuse (excessive and prolonged therapy) has been associated with nephropathy. TO AVOID

ACCIDENTAL POISONING ACETYLSALICYLIC ACID PREPARATIONS MUST BE KEPT WELL OUT OF REACH OF CHILDREN.

PRECAUTIONS: Give with caution to patients with asthma, other allergic conditions, bleeding tendencies, or hypoprotrombinemia. Salicylates can produce changes in thyroid function tests.

Observe care in use of codeine, although tolerance and addiction are rare. Give codeine with caution to patients with severe respiratory depression. Its depressant effect may be enhanced by concurrent administration of sedatives and tranquilizers.

ADVERSE REACTIONS: Acetylsalicylic acid: *Gastrointestinal:* dyspepsia, heartburn, nausea, vomiting, diarrhea, gastrointestinal ulceration and bleeding. *Ear reactions:* tinnitus, hearing loss. *Hematologic:* anemia, leukopenia, thrombocytopenia, purpura. *Dermatologic and Hypersensitivity:* urticaria, angioedema, pruritus, various skin eruptions, asthma and anaphylaxis. *Miscellaneous:* mental confusion, drowsiness, sweating and thirst.

Codeine: Average or large doses may cause various gastrointestinal symptoms such as nausea, vomiting and constipation.

Caffeine: May cause nausea, nervousness, insomnia, headache, vomiting, palpitation, vertigo, muscle tremor, sensory disturbances, excessive diuresis in sensitive patients. Large doses may cause gastric ulceration.

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BOURSES D'ETUDES EN PROSTHODONTIE

En vue de la redéfinition récente du terme "prosthodontie", le Collège royal des dentistes du Canada organise un examen spécial pour ceux qui sont admissibles aux bourses d'études. Cet examen spécial aura lieu au cours de la semaine du 20 juin 1977 et ne sera pas répété.

On peut obtenir les formules d'inscription au secrétariat du Collège suite 614, Medical Arts Building, 170 rue St-George, Toronto M5R 2M8. Prière de soumettre les demandes d'inscription avant le 1er décembre 1976, au secrétariat du Collège.

Cet examen comprendra:

1. Un examen oral qui durera environ 90 minutes et couvrira le domaine général de la prosthodontie et le domaine spécifique de dentisterie restauratrice (prothèse inamovible et dentisterie opératoire). Les thèmes suivants seront compris: occlusion; rapport entre le parodonte et les techniques restaura-

trices; méthodes cliniques; matériaux dentaires employés; philosophies adoptées pour les traitements à long-terme et sciences de base qui relèvent de cette discipline.

2. La présentation de deux traitements terminés, illustrant les principes de dentisterie restauratrice avancée. Les dossiers qui se rapportent à ces cas comprendront: diagnostic à l'aide de montages de modèles d'étude; radiographies pré et post opératoires de toute la bouche; rapports par écrit décrivant la raison d'être et les séquences du traitement, accompagnés de photos en couleur des étapes cliniques du traitement. Le candidat est tenu de justifier les techniques, matériaux et instruments sélectionnés.

Pour être admissibles à cet examen, les candidats doivent remplir les conditions suivantes:

1. candidats qui se sont spécialisés

avant 1965 et qui n'étaient pas auparavant admissibles à se présenter à l'examen (interim initial ou autre).

2. candidats exerçant dans une clinique, dans l'enseignement ou la recherche dans une spécialité pour une période minimale de 10 ans, préalablement à 1965, sans formation de spécialiste, qui ont apporté d'importantes contributions à cette spécialité (sur la recommandation de pairs ou lors de la reconnaissance provinciale de cette spécialité et son acceptation par le Comité d'accréditation) qui n'étaient pas auparavant admissibles à se présenter à l'examen.

Le Comité d'accréditation, qui comprendra des délégués de la spécialité, déterminera l'admissibilité des candidats.

Il y aura trois examinateurs pour cet examen spécial, deux du Canada et un des Etats-Unis.

JOURNAL DE L'ASSOCIATION DENTAIRE CANADIENNE

RÉDACTEUR ADJOINT (FRANÇAIS)

Chargé des chroniques de nouvelles et scientifiques du journal rédigées en français. Les fonctions de ce poste comprennent la rédaction en français et en anglais des nouvelles concernant le Québec, la traduction des nouvelles et résumés scientifiques de langue anglaise, ainsi que la recherche d'articles scientifiques de langue française et leur adaptation aux normes et au format du Journal.

Les candidats doivent posséder un diplôme général ou spécialisé en art dentaire, une expérience des domaines du journalisme ou de rédaction ou une expertise personnelle de la rédaction pouvant s'appliquer au poste de rédacteur. La préférence sera accordée aux candidats ayant des contacts étroits avec la profession dentaire et les facultés d'art dentaire.

Les candidats intéressés sont invités à soumettre un curriculum vitae complet avant le 31 mai au:

Conseil Exécutif de l'ADC
234 rue St. George
Toronto, Ontario M5R 2P2

Le Conseil de l'ADA approuve la pâte dentifrice Macleans

Le numéro du mois de mai du Journal de l'American Dental Association comprendra un rapport du Conseil sur la thérapeutique dentaire annonçant son approbation de la pâte dentifrice au fluorure Macleans à titre d'agent efficace de réduction de la fréquence de carie dentaire, lorsque ce dentifrice est employé dans le cadre d'un programme approprié d'hygiène buccale et de soins professionnels réguliers.

Une certaine publicité a été faite dernièrement au fait que le chloroforme cause le cancer chez certains animaux de laboratoire. A cet égard, il faut signaler que la crème dentifrice Macleans au fluorure ne contient pas de chloroforme à titre d'ingrédient servant à la parfumer, pas plus qu'aucun dentifrice approuvé par le Conseil de l'Ada sur la thérapeutique dentaire.

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Instructions to Contributors

The Journal of the Canadian Dental Association is currently soliciting research and clinical articles for publication. Interested contributors are asked to use the following outline of requirements when preparing manuscripts.

Manuscripts: Manuscripts should be submitted to the editor with a covering letter requesting consideration for publication in the Journal. Send two copies — original and a carbon — typewritten with all material (text, quotations, tables, legends, references, etc.) double-spaced, on one side of the sheet, 8½ x 11 inches, with ample margins on all four sides. The author should always retain a carbon copy of material submitted. Every article should contain a summary of the contents.

Original articles are considered and accepted subject to the understanding that they are submitted solely to this Journal, and will not be reprinted without the consent of both the editor and the author.

The editor reserves the right to fit articles within the space available and to make usual editorial alterations in manuscripts; these include such changes as are necessary to ensure correctness of grammar and spelling, clarification of obscurities or conformity to Journal style. In no case will major changes be made without prior consultation with the author. The senior author will receive either the edited manuscript or galley proofs for checking prior to publication.

Article Titles: Make article titles descriptive but as concise as possible. Long titles discourage reading, present

typographical and layout problems and create difficulties in library indexing.

References: Authors should limit references to published work to the minimum necessary for guidance to readers wishing to study the subject further. They should not quote articles they have never seen. Except in review articles, the maximum number of references should not be more than 25. References should be numbered in the text and should be set out in a separate numbered list at the end of the article.

For journal references, give the author's name, article title, journal name, volume number, first page of article, and year of publication:

1. Gibb, G. H. Methods of achieving improved amalgam restorations. *J Canad Dent Ass* 30:413, 1964.

For books give the author's name, book title, location and name of publisher, year of publication:

2. Kilpatrick, H. C. Work simplification in dentistry. Ed. 2. Philadelphia, Saunders, 1964.

Illustrations: Line and halftone illustrations should be of high quality for satisfactory reproduction.

Photographs — Handle photographs carefully. Do not bend, fold or use paper-clips. Photographs should be unmounted, untrimmed, good, sharp, black and white glossy prints, preferably not larger than 10 x 8 inches. Color work can only be published at the author's expense. Magnification of photomicrographs must always be given. Photographs must not be written on or typed on. On the back of each photograph, very lightly and in pencil, write the author's name, the figure number and indicate the top edge. If a

figure contains two or more photographs, do not mount the parts; on the back of each photograph write very lightly in pencil the figure number and part letter (Figure 1a, etc.) and indicate the top edge. Patients must not be recognizable unless the written consent of the subject to publication has been obtained.

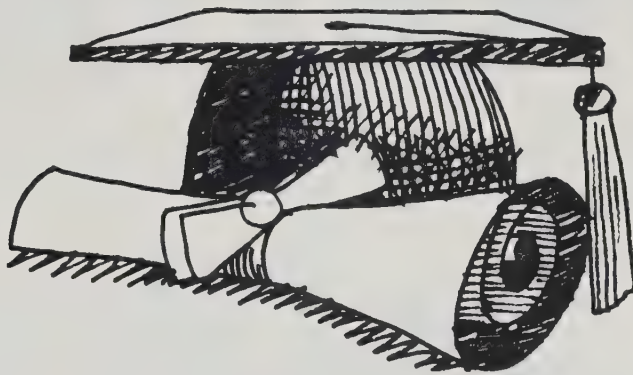
Drawings — Figures, graphs, charts and diagrams should be drawn and lettered in india ink. Lettering must be large enough to be read after the drawings are reduced to column width (small, simple drawings) or page width (larger, more complex drawings).

Legends — Figure legends should be typed as a group on a separate sheet. They should be separate from the text of the article and from the illustrations.

Tables: Each table should be typed on a separate sheet. Tables should be numbered consecutively and tailored to fit within column width or page width. Table title and table footnotes should be on the same page with the table. Do not show vertical rules in tables.

Permission and Waivers: These should accompany the manuscript when it is submitted for publication. Permission of author and publisher must be obtained for the direct use of material (text, photos, drawings) under copyright that is not your own. Up to one hundred words of prose material usually can be quoted without getting permission, provided the material quoted is not the essence of the complete work. Waivers must also be obtained for the publication of photographs showing persons, unless faces are masked to prevent identification. Waiver forms are available from the editor.

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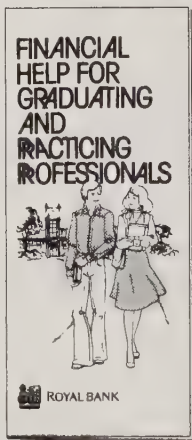
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TUSKS

H. Sperber, BSc (Hons), BDS, MS, PhD
Edmonton, Alta.

All the varieties of shapes and sizes of teeth found in the animal kingdom, none is more impressive than the occurrence of tusks. A tusk may be broadly defined as a particularly elongated anterior tooth that projects beyond the occlusal plane and protrudes out of the mouth. Tusks may be either the incisors or canines of a heterodont dentition and generally are of persistent growth. Accordingly, tusks tend to increase in size with the age of the animal, unless they are graded or broken, and consequently the largest tusks are found in the oldest animals. Because of their persistent growth, there is no sharp definition between the crowns and roots of tusks, although they generally have an enamel covering over their dentine or ivory core. The apex of the root of a tusk remains wide open throughout life to maintain a pulp that is continually producing dentine that results in elongation of the tusk. Generally, tusks follow a spiral growth pattern in their growth.

Although the maxillary and mandibular incisor teeth of elephants are of persistent growth, they are not usually considered to be tusks, because they are normally continually graded to a constant length, and they do not project beyond the confines of the mouth. Tusks may be paired or single, and may be found in both maxilla or mandible, or in one

jaw only. They may have migrated out of the mouth entirely, and protrude directly from the skull. As varied as their size and location is the manner of usage of tusks by different animals. Canines that enlarge into tusks tend to be used as weapons of warfare, while incisor tusks are more prone to be used as tools for tree-felling, portage and digging.

Incisor tusks

Selective enlargement of anterior teeth to form tusks is of course an evolutionary process, the history of which is well illustrated in tracing the lineages of elephants, walruses, etc. There is moreover sexual dimorphism displayed in most animal species developing tusks, with males always exhibiting more precocious development and greater enlargement of their tusks than their corresponding females. This sexual dimorphism reaches the ultimate extreme in the complete suppression of the incisor (and indeed, all) teeth in the female narwhal, a cetacean sea mammal, while the male of the species develops an extraordinary tusk, often of magnificent length, from one of its left incisor teeth. Suppression of the right incisor (and all other) teeth occurs in

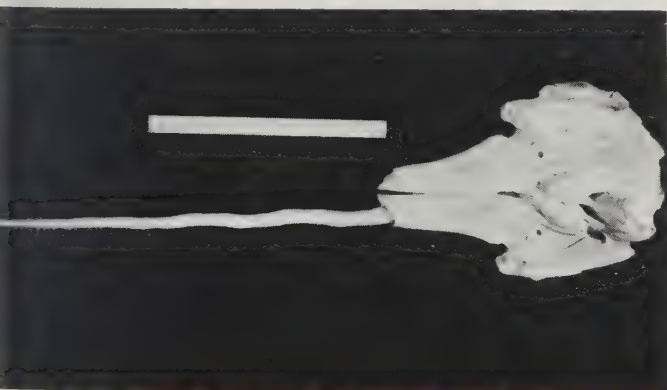


Fig 1 The skull and tusk of a male narwhal (*Monodon monoceros*). The tusk is a spirally-twisted left incisor tooth growing from the left maxillary bone. The scale measure is 0.5 metre (18 ins.) long.



Fig 2 A male narwhal (*Monodon monoceros*) depicting the apparently central location of its left incisor tooth that gave rise to the misconception of it being a horn by early mariners.

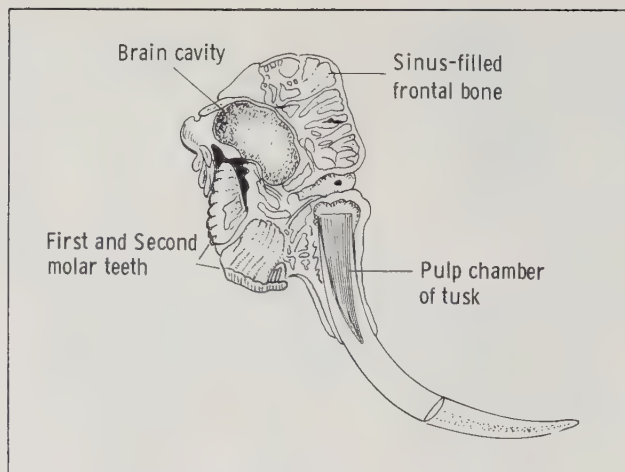


Fig 3 Sectioned view of the skull and tusk of a modern elephant (*Loxodonta africana*). Note the buttressing for the tusk's deep socket provided by the sinus-filled frontal bone overlying the comparatively small brain cavity.



Fig 4 A triple-tusked African elephant. The normal tusks are the lateral incisor teeth. The extra tusk is the medially located central incisor tooth.

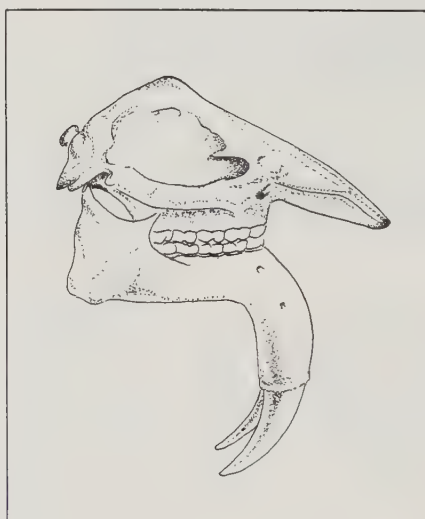


Fig 5 Skull of *Deinotherium*, a miocene proboscidean. Note the absence of upper tusks and the peculiar downwardly directed recurving lower incisor tusks. (After Romer: Vertebrate Paleontology).

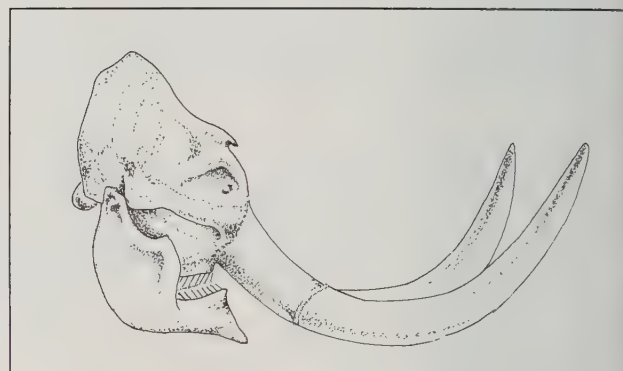


Fig 6 Skull of *Mammuthus primigenius*, the woolly mammoth. Note the enormous upwardly recurving incisor tusks. (After Romer: Vertebrate Paleontology).

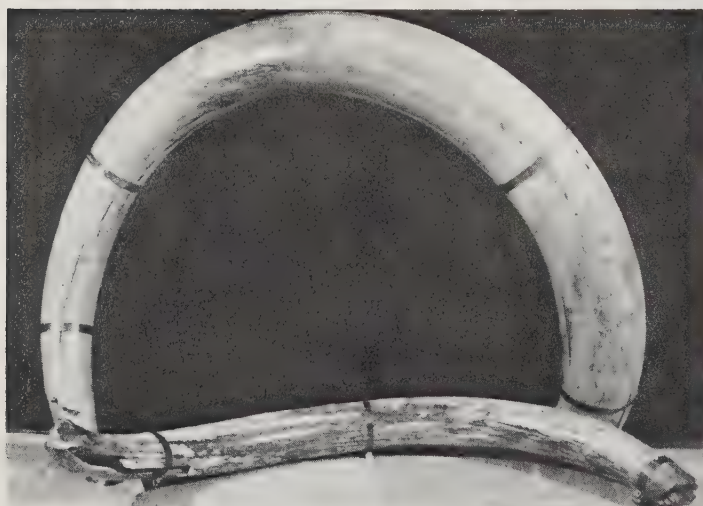


Fig 7 Tusks of *Mammuthus primigenius* (woolly mammoth) about 2.5 metres (approx. 8 feet) in length. The tusks are banded with metal to preserve them from brittle disintegration.

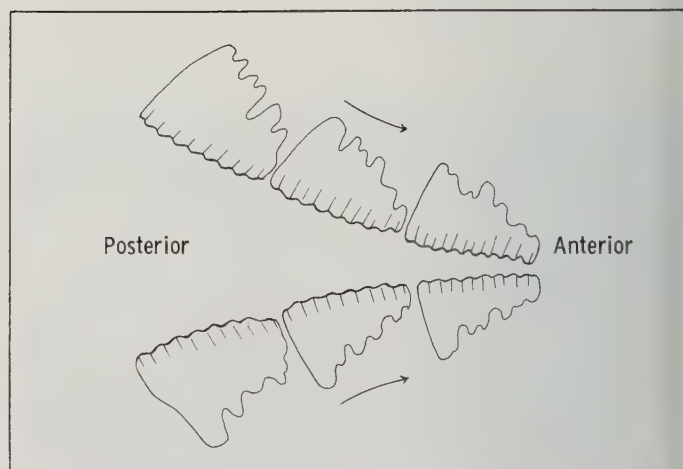


Fig 8 Schematic depiction of molar tooth eruption in elephants.

is species, named scientifically for its dental characteristic *Monodon monoceros* (mono = single; odon = tooth). (Fig. 1).

The tusk of the male narwhal is remarkable in many ways. The selection of the left incisor only for tusk enlargement causes considerable asymmetry of the skull that needs to accommodate the socket for the tusk that may reach up to 8 feet (2.7 metres) long. The bony buttressing necessary to hold this length of tusk can be appreciated. As remarkable as its unilateral nature is the migration of the narwhal's tusk from its initial intra-oral position to its extra-oral forward projecting location (Fig. 2) although still contained in the premaxillary bone. The narwhal's straight tusk possesses a left-handed spiral twist, lending it a flexibility enhanced by its lack of an enamel covering. Rarely are bilateral twin tusks developed in this animal. The use to which the tusk is put is not known, although it is believed not to be used for food gathering, spearing or combat.

Another but more widely known animal exhibiting incisor tusks is the elephant, whose upper lateral incisor teeth project beyond the mouth as the most popularly known form of tusk, and the chief source of ivory (Fig. 3). Sexual dimorphism is again exhibited by the bull developing larger tusks than his female counterpart, who, nonetheless, can develop sizable tusks.

Evidence for the tusks of elephants being lateral incisor teeth is vividly demonstrated by the rare phenomenon of triple or quadruple tusked elephants (Fig. 4). The "extra" tusks growing in these abnormally-tusked elephants are seen to be the central incisor teeth that are smaller in size and more medially located than the normal tusks.

Modern elephants are but one representative of the proboscideans. The mastodons*, woolly mammoths and reinotheria of miocene and pliocene times were predecessors of the modern elephant, and exhibited spectacular development of their incisors into huge tusks, the largest variety of teeth known. Many variations of tusk development from the incisor teeth existed among the early proboscideans. Some developed four tusks, a pair in the upper jaw and a pair in the lower jaw. *Tetrabelodon* (tetra: four; odon: tooth) possessed four tusks. Its upper tusks were curved downward rather upward, in contrast to the modern elephant's tusks. One species, *Deinotherium*, which lived in miocene times, in contrast to all other proboscideans, lacked upper tusks, but developed lower tusks that curiously were directed downward, and with growth, curved backward, reaching 2 feet (0.6 metre) in length (Fig. 5).

Elephas antiquus and the *Mastodon* possessed nearly straight tusks, while the woolly mammoth (*Mammuthus primigenius*) had enormous strongly upwardly curved tusks (Figs. 6 and 7). Tusks of the male woolly mammoth have been recorded up to 14 feet (4.8 metres) in length, making them the largest example of teeth known. It is suggested

The mastodon is so named for its molar teeth having nipple-like projections (mastos: nipple; odon: tooth).

that they may have functioned as shovels for exposing vegetation beneath the snow.

The modern Indian elephant (*Elephas maximus*) exhibits marked sexual dimorphism of tusk development in that the cows are tuskless, while the largest bull tusk recorded was 8 ft. 9 in. (2.8 metres) long and weighed 160 lb. By contrast, both sexes in the modern African elephant (*Loxodonta africana*) possess tusks, although those of the cow are more slender. The record size for an African bull elephant's tusk is 11½ feet in length (3.5 metres) weighing 226 lbs., while the record for a cow is 6 ft. 7 in. in length and 52 lb. weight. Most elephants use their right tusk more frequently than their left, causing it to be shorter than its counterpart.

While elephants can survive without their tusks, they cannot do so without their molar teeth, being the only other teeth they possess, since they lack canines and premolars. The use of molar teeth by the elephant for mastication of its herbivorous diet is partly responsible for determining the natural life span of the elephant. Since there are three permanent molar teeth in each quadrant of the mouth of the elephant (Fig. 8) each of which is exfoliated after an average of 20 years, the elephant loses its powers of mastication after losing each third permanent molar at an average age of 60 years. The difficulties of subsequently ingesting unmas-ticated food by the "edentulous" elephant (that may still possess tusks) contribute to the elephant's demise at this age.

Canine tusks

Extraoral overgrowth of canine teeth to produce tusks occurs in a number of animal species, but none grow to as spectacular a size as do incisor tusks.

The most spectacular development of canine teeth as tusks occurs in the walrus (*Odobenidea*) (Fig. 9). While both sexes develop tusks, those of the male grow larger, and in an old bull may reach 2 feet (0.6 metre) in length. Slight differences in the tusks occur in the two species. *Odobenus rosmarus* that inhabits the Atlantic Arctic possesses straight tusks, while *O. divergens* that inhabits the Pacific Arctic has tusks that diverge at the tips, as its species name implies. Apart from the canine tusks, all the other teeth are of limited growth, simple in structure (haplodont) and few in number in both species.

The exact purposes for which the canine tusks are employed are not well understood. Walruses are not known to use their tusks for attack, but may use them to pry molluscs off rocks for food. An ingenious observation has been made that they use their tusks as an extra pair of limbs, to assist them clambering out of the sea onto ice floes.

The maxillary and mandibular canines of the Suidea (pigs) (Fig. 10) and the hippopotamus (Figs. 11 and 12) are teeth of persistent growth that normally abrade against one another to maintain teeth of fairly constant length. Classification of these teeth as tusks is based upon a feature of the upper canine tusks of Suideae that grow outwardly and upwardly, a peculiarity that reaches an extreme in the *Sus babirusa* of the East Indies, in which these teeth coil

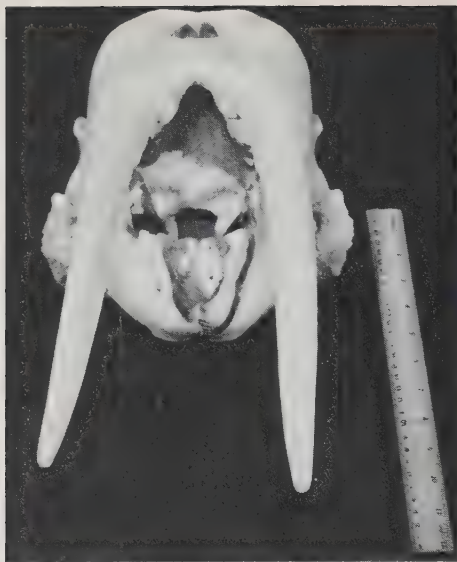


Fig 9 Skull and canine tusks of Walrus (*Odobenus rosmarus*) seen from a frontal view. The mandible is articulated with the cranium. The scale is one foot (0.3 metre) ruler.



Fig 10 Cranium and disarticulated mandible of a warhog (Vlakovark, *Phacochoerus aethiopicus*). Note that both the upper and lower canine tusks recurve in upward growth.



Fig 11 Mandible of Hippopotamus (*Hippopotamus amphibius*) showing its tusk-like incisor and canine teeth.

upward in hornlike fashion over the snout (Fig. 13). Their purpose has been teleologically proposed as protection for the eyes of the animal in the undergrowth, but this use has not been substantiated.

The native inhabitants of Malakula Island in the New Hebrides, South Pacific, take advantage of the continuous growth of the canine tusks of wild boars to obtain prized ornaments. Young boars are caught and their upper tusks removed. The lower tusks, deprived of their normal abrasive wear, continue to grow in a cochlear-like form (Fig. 14). The older animals with overgrown tusks are caught again and killed. Jaws with these cultivated tusks are used in ritual dances, and dissected tusks are worn as ornaments.

The canine teeth of the baboon (*Papio spp.*) (Fig. 15) deserve to be termed tusks because of their enormous size compared with their other teeth and because of their marked projection beyond the occlusal plane. While both male and female baboons possess enlarged canine teeth, they become much larger in the male, increasing in length with age. The male baboons are not averse to using their tusks as vicious weapons of attack both in fighting and fending off preying animals (and man).

The large size of the baboon's canine teeth create diastemata in the dental arcades to accommodate the canines when the jaws are closed. The lower first premolar is further modified as a much elongated sectorial tooth to provide an efficient scissors mechanism when occluding with the upper canine tooth. The remaining teeth of the baboon are not markedly different from those of other primates.

The possession of tusk-like canine teeth is not always to the ultimate advantage of an animal as demonstrated by the extinct sabre-tooth cat (*Smilodon*) (Fig. 16). The sabre-tooths lived in pliocene and early pleistocene times and

possessed upper canine teeth that grew up to 20 cm in length. The lower canines were correspondingly reduced, and the tempomandibular joint allowed opening of the mandible to a right angle, enabling these cats to use their canines as stabbing sabres, causing death of their prey by copious bleeding. The enlargement of their canines became so great as to prove a hinderance, contributing to the extinction of the species.

Ivory

Ivory is one of the three hard tissues that form all mammalian teeth — the three tissues being enamel, dentine and cementum. Ivory is the dentine of tusks, being intermediate in hardness between the flinty, hard, vitreous enamel and the bone-like cementum. The hardness of ivory varies between different animals that possess tusks. Hippopotamus ivory appears to be the hardest variety and was most favored for use by early dentists for making artificial dentures because of its great density and durability in the mouth. Walrus ivory was next most commonly used as a more easily worked and cheaper substitute than hippopotamus ivory. Elephant ivory is one of the softest and most abundant of the ivories because of the large size of the tusks. By comparison with human dentine, elephant ivory is quite soft, as it contains a lot more organic matter and, therefore, less hard minerals than does human dentine. The hardness of elephant ivory varies quite considerably, that from West African elephants being harder than the soft Indian elephant variety. Soft ivory withstands differences of climate and temperature better than hard ivory, and does not crack as easily. The high organic content of soft ivory makes it very elastic and the organic matter contributes to



Fig 12 The isolated central incisors (above) and canine (below) of the Hippopotamus. Note the lack of differentiation between the crowns and roots of these teeth, a characteristic of continually-growing teeth.

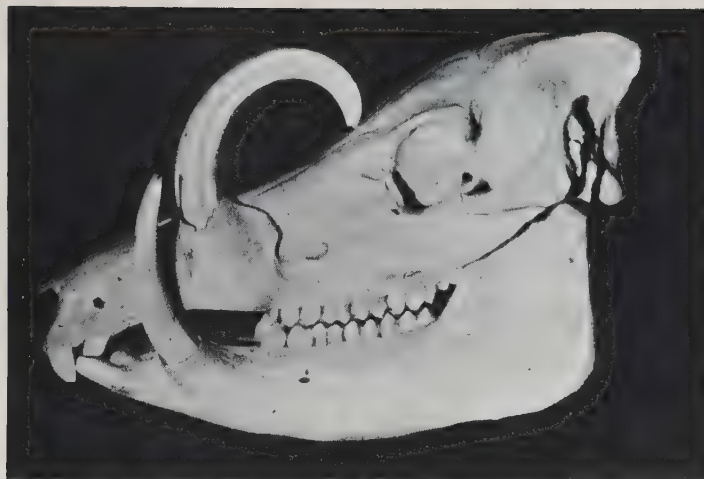


Fig 13 The skull of *Sus babirussa*, a deer-like pig of the East Indies (Celebes). Note that both the mandibular and maxillary canine tusks grow upwards. The continuous recurving growth of the maxillary tusk may penetrate the skull, eventually killing the animal.

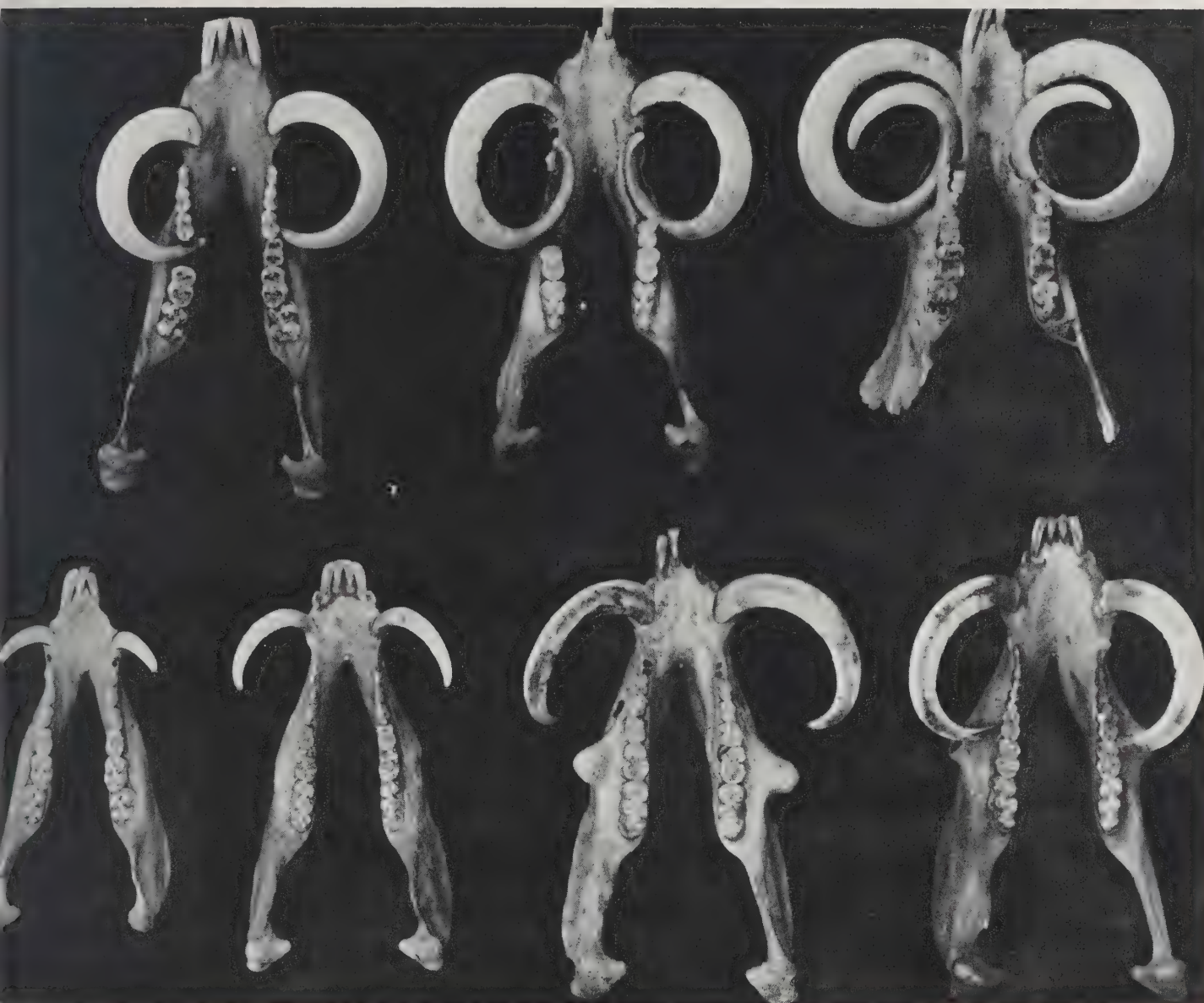


Fig 14 A series of mandibles of wild boars from the New Hebrides islands of the South Pacific. The maxillary canines of these boars had been knocked out, and the mandibular canines allowed to grow unimpeded into the cochlear forms seen here. Note how the continually growing tusks penetrate the mandible in their recurving growth pattern. (Courtesy of Field Museum of Natural History, Chicago).

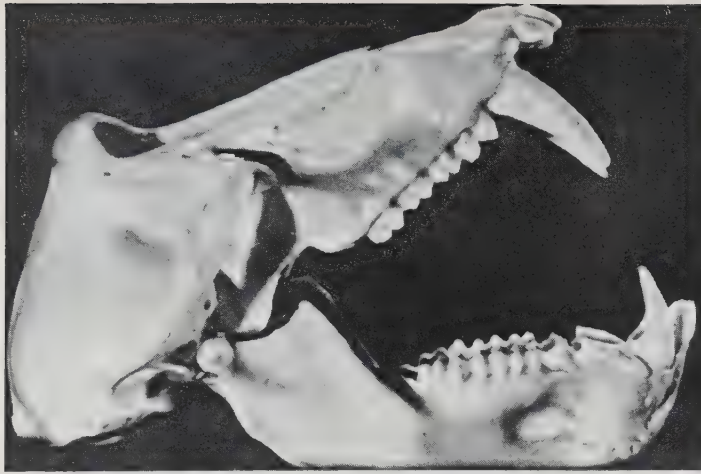


Fig 15 The skull of a Chacma baboon (Kaapse Bobbejaan, *Papio ursinus*) revealing its canine tusks. Note the diastemata to accommodate the canines in the closed jaws, and the elongated sectorial first mandibular premolar.



Fig 16 Skull of sabre-tooth cat (*Smilodon*). (After Romer: Vertebrate Paleontology).

the beautiful polish that can be imparted to ivory. These are some of the qualities that have made ivory so prized a medium of art expression from the earliest times.

Transverse cut sections of elephant tusk show a regular pattern of alternating light and dark diamond-shaped areas that provide a reticulated "chequer-board" effect that adds to the beauty of carved ivory and identifies genuine elephant ivory from bone or even plastic substitutes. This unique feature of ivory is due to a particular and strictly orderly arrangement of thousands of dentinal tubules that pass in regular sinuous curves across the thickness of the ivory. The surface of the ivory appears light or dark according to whether the rays of light strike convexities or concavities of the groups of curved tubules. The tubules are filled with organic matter and confer resilience and strength to the enormous tusks of elephants.

The fact that tusks are continually-growing teeth and that ivory was once a living dental tissue accounts for the hollow



Fig 17 A denture carved from hippopotamus ivory. Circa 1820.

centre found in tusks. Lodged in the central core of all teeth, tusks included, is a dental pulp that provides sensitivity to the tooth. The sensitive dentine or ivory that forms the bulk of a tooth or tusk is normally covered with a protective veneer of enamel that provides a glistening white appearance. This enamel veneer is soon worn off in most elephant tusks, exposing the underlying cream-coloured ivory that does not sparkle quite as brightly as enamel. This ivory or dentine develops a protection against its initial sensitivity by adding on layers of secondary dentine inside the pulp that accounts in part for the continual growth of the tusks. The secondary dentine deposition also enables tusks to repair themselves if damaged, and many instances of bullets and spears totally embedded in ivory have been recorded. The particularly beautiful objects known as elephant "pearls" consist of concentric layers of ivory deposited over a foreign object that has intruded into the soft ivory at the base of the growing tusk.

In earlier times, the trade in elephant ivory was very considerable. In the 1860s some five hundred tons of ivory were imported into Europe annually, which, supposing each tusk weighed an average of forty pounds, represented the tusks of some thirty to forty thousand elephants killed each year. Most of the trade in ivory was from African elephants. The best ivory came from the equatorial region of Africa, especially from West Africa which gave the West African Republic "The Ivory Coast" its name. It is evident that the climate and food eaten by elephants influence the quality of their ivory.

Amazingly, prehistoric mammoth and mastodon tusks once provided a source of commercial ivory. This material used to be mined out of the bogs of Siberia at the turn of the century, much like gold is mined. This source has now petered out, and fresh ivory is becoming increasingly difficult to obtain, making the material more and more precious. Furthermore, ivory can deteriorate if not kept under

Continued on page 268

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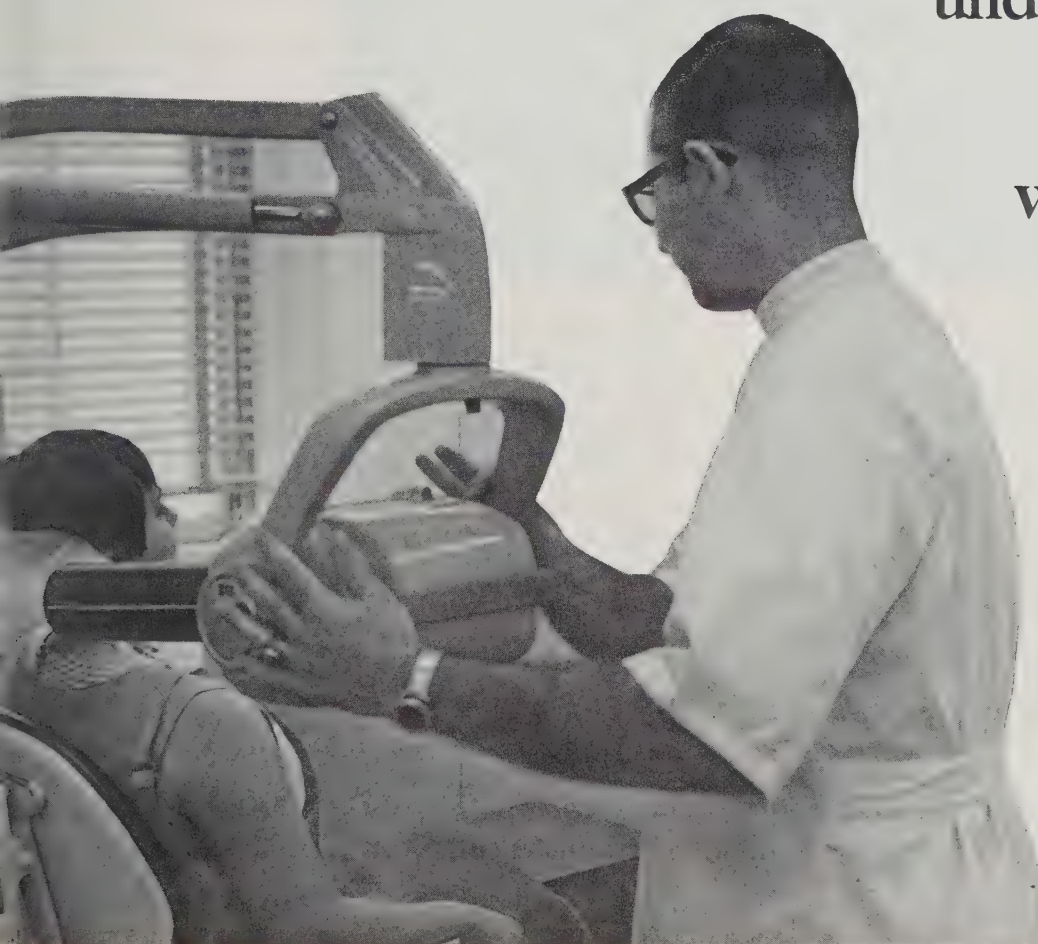
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Influence of dental status on deaths resulting from food asphyxia

J. L. Anderson, DDS, MScD, FRCD(C)

K. S. Szainwald

Toronto

Death by inhalation of food strikes down 365 Canadians annually. Additional deaths due to the so-called café coronary are misdiagnosed as heart attacks. Poor dental status is a direct cause in most of these deaths in adults. Other contributing factors are age, sex, drugs, and eating habits. Mortality rates between 1965 and 1973 indicate male predominance with highest mortality during infancy and senility. During this nine-year period, rates have declined in infants but have increased in those over 40. At middle age, they climb rapidly, similar to the rates for missing teeth and edentulousness. Further controlled studies are necessary to determine the role of dental status in food asphyxiation. First aid measures are described.

Chaque année, 365 canadiens meurent par asphyxie à cause d'aliments. D'autres décès, provoqués par ce qu'on appelle des "coronaires de café" sont attribués à tort à des crises cardiaques. C'est le mauvais état de la dentition qui est la cause directe de la majorité de ces décès parmi les adultes: les autres facteurs qui y contribuent sont l'âge, le sexe, les drogues et les habitudes alimentaires. Entre 1965 et 1973, les taux de mortalité indiquent une prédominance chez les hommes, les décès les plus nombreux se produisant parmi les très jeunes enfants et les vieillards. Au cours de cette période de neuf ans, le nombre de décès a baissé pour les enfants mais il a augmenté pour les adultes âgés de plus de 40 ans. Chez les personnes d'âge moyen, ce chiffre grimpe rapidement et il est proportionnel au nombre de personnes qui ont peu de dents ou qui sont édentées. Il faudra d'autres études dirigées pour déterminer l'influence de l'état dentaire sur les cas d'asphyxie causés par la nourriture. La communication décrit les premiers soins à appliquer.

Surprisingly little has been written in the dental literature on the important problem of food asphyxiation. In the United States, autopsy has confirmed that food asphyxia is the cause of 700 to 1,000 deaths each year.¹ The US National Safety Council puts the estimate at 2,500 deaths annually, making it the sixth leading cause of accidental death in the US.¹ These figures probably are a conservative estimate because many deaths by food inhalation are misdiagnosed as heart attacks. Haugen² coined the term "café coronary" in respect to these deaths. He described a typical incident as follows: "A middle-aged or elderly person, at a fashionable restaurant, is partaking of filet mignon, or, perhaps, broiled lobster, or prime rib of beef. At the same time, he is conversing with companions at dinner. Suddenly, he ceases to eat and talk. The dinner companions are perplexed, but not alarmed, for there is no indication of distress. Then, the person suddenly collapses at the table. Attempts at resuscitation are made by the maitre d'hôtel, waiters and friends. In some instances, a physician may be present who also attempts to aid the stricken person. The ambulance arrives and the person is rushed to the nearest hospital emergency room where he is dead on arrival. The emergency room physician, or family doctor, attributes death to natural causes and probably to coronary artery disease." In many cases, the real cause of death is determined only at autopsy.

First aid

A café coronary is distinguishable from a heart attack. Dentists should become acquainted with the signs, symptoms and emergency treatment. A person with an airway obstruction is unable to breathe, cough, or speak, while a true coronary victim will usually be able to utter some sound. A completely obstructed airway will usually cause death in under five minutes. The following emergency treatment should be instituted immediately,^{1,3} utilizing whatever is available:

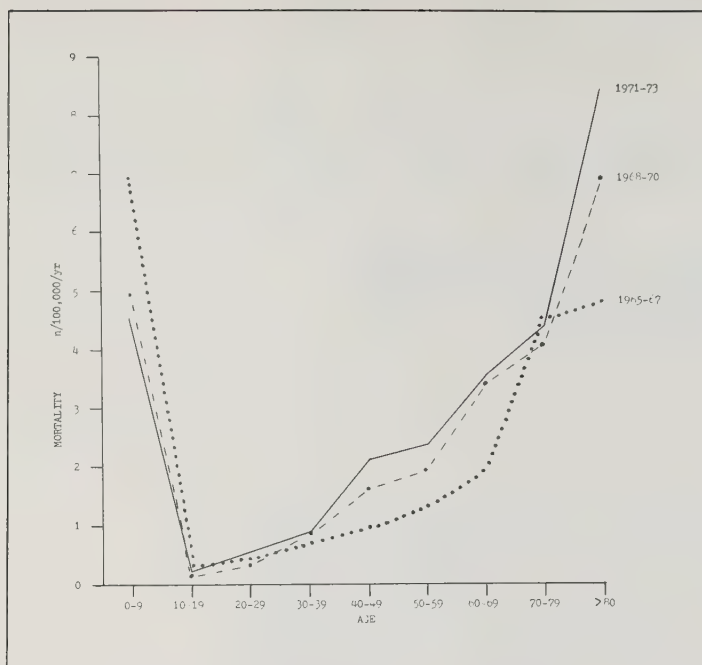


Fig 1 Male mortality rates for inhalation and ingestion of food by age in Canada for 1965-67, 1968-70 and 1971-73.

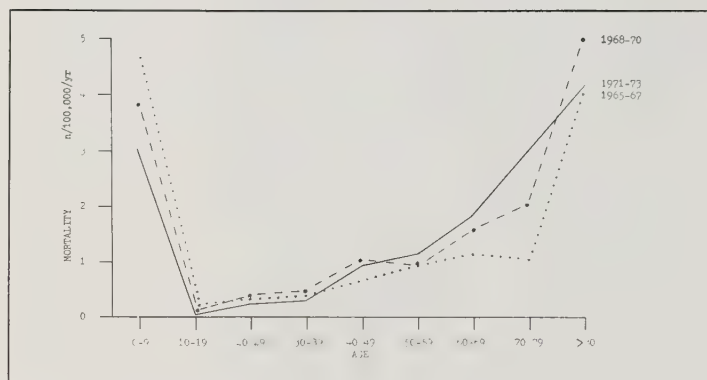


Fig 2 Female mortality rates for inhalation and ingestion of food by age in Canada for 1965-67, 1968-70 and 1971-73.

1. Open the victim's mouth and attempt to pull out the obstructing food bolus with the middle and index fingers, or with a pair of suitable forceps which now may be available in some restaurants. Pulling the tongue forward may help. If the muscles of mastication are in spasm, two knives will be useful in levering the mouth open.

2. If this is unsuccessful, the Heimlich manoeuvre⁴ should be tried next. While standing behind the victim, the operator wraps his arms around the victim's waist and allows the head and upper torso to hang forward. Grasping one fist with the other hand, the fist is placed against the victim's abdomen, slightly above the region of the navel and below the rib cage. Then, the fist is forcefully pressed into the abdomen with a quick upward thrust. The pressure thus created may cause the residual air in the lungs to eject the obstructing bolus. This manoeuvre should be repeated

several times if necessary, but remember that the time available is short. In the nine months following advocacy of this manoeuvre, reports indicate that 162 lives have been saved.

3. If the Heimlich manoeuvre fails to remove the obstruction, an opening must be made into the trachea. The cricothyrotomy is the easiest procedure in this emergency.³ The cricothyroid space is palpated between the laryngeal prominence (Adam's Apple) and the cricoid cartilage below. An opening is made with anything available: a steak knife, fork, or even broken glass can be used as a scalpel. The barrel of a ball-point pen can be inserted into the opening, and artificial respiration performed through it if necessary. This procedure is obviously risky, but the alternative is that the victim will die.

Death by food asphyxiation occurs more often than is generally appreciated. More complete statistics are available in Canada⁵ than have been presented in previous reports. The purpose of the present report is to bring to the attention of Canadian dentists the number and distribution of deaths in Canada due to inhalation of food, and to discuss the probability of poor dental status being an important factor in such deaths. As health professionals, dentists should learn to recognize a café coronary and take emergency procedures to avert almost certain death.

Materials

The source of the data was Statistics Canada publications *Causes of Death* for the years 1965 to 1973, in which deaths are listed annually by age, sex and province.⁵ The figures used were classified as "Deaths by Inhalation and Ingestion of Food," which includes asphyxia by food and vomitus. Mortality rates expressed as the number of deaths per 100,000 of the population per year were calculated for each sex for every ten-year age group for the entire nine-year period, and for three separate three-year periods. For the nine-year period, mean rates were calculated for provinces and territories for each sex. Rates of missing teeth and edentulousness in US white adults by age and sex were obtained from data of the 1962 US National Health Survey. Chi-squares were calculated to determine the level of significance of differences in rates.

Findings

From 1965-67 to 1971-73, there was a slight but significant ($p < 0.01$) decrease in mortality rates in both sexes. This was due to a decrease in rates among infants and children; in the middle aged groups there was a significant ($p < 0.01$) increase in rates (Fig 1,2).

Mortality rates were significantly ($p < 0.01$) higher for males than for females (Table 1). They were highest among infants, dropped markedly and remained low from ages 5 to 29, then increased substantially to age 59, followed by an even greater increase in the older groups (Table 1; Fig 1,2).

Mortality rates appeared to be highest in the Northwest Territories and lowest in British Columbia (Table 2). Rates

Mean number of deaths per year and mortality rates by sex and age for inhalation and ingestion of food in Canada between 1965 and 1973

Table 1

Age	< 1	1-4	5-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	> 80	Total
n/deaths/yr												
Male	105.9	13.6	2.0	5.5	7.2	10.8	19.9	18.5	19.3	15.0	8.9	226.4
Female	71.3	9.0	0.8	2.7	4.9	4.7	10.6	10.0	10.3	8.8	8.3	139.3
N/100,000/yr												
Male	55.6	1.6	0.2	0.3	0.5	0.8	1.6	1.9	3.0	4.3	6.8	2.2
Female	39.6	1.2	0.1	0.1	0.3	0.4	0.9	1.0	1.5	2.2	4.6	1.3

Sex-specific number of deaths per year and mortality rates for inhalation and ingestion of food for provinces and territories of Canada between 1965 and 1973

Table 2

	Nfld	PEI	NS	NB	Que	Ont	Man	Sask	Alta	BC	Yukon	NWT
n/deaths/yr												
Male	7.4	1.3	8.7	5.6	47.6	92.8	18.3	13.4	16.0	13.9	0.1	1.3
Female	3.4	0.4	3.7	4.2	31.8	56.6	12.4	9.6	7.6	8.0	0.3	1.4
n/1000,000/yr												
Male	2.9	2.4	2.2	1.8	1.6	2.5	3.7	2.8	2.0	1.3	1.3	7.8
Female	1.4	0.8	1.0	1.3	1.1	1.5	2.6	2.1	1.0	0.8	4.4	9.7

ere higher in females than in males in the Northwest Territories and in the Yukon, but the numbers were low and the rates may be misleading.

Discussion

In Canada, as in the US, the number of deaths due to food asphyxiation is probably under-reported because of misdiagnosis, with subsequent classification as deaths due to coronary heart disease. From 1965 to 1973 — in Canada — an annual average of 226 deaths in males and 139 in females were reported to result from ingestion and inhalation of food.

There is some regional variation in mortality rates. For both sexes the rates were higher in Ontario, Manitoba, Saskatchewan and Newfoundland than in the other provinces; but it is not possible to determine if the differences are real or result from variability in diagnosis and reporting. Although rates appear to be high in Canada's North, the number of deaths are too few to permit meaningful interpretation. Mortality rates for other countries were not found in search of the medical and dental literature.

Adult females have more teeth missing and edentulous mouths than do males,^{6,7} but deaths in Canada from inhala-

tion and ingestion of food were more frequent in males of all ages. Although middle-aged and elderly males tend to be more careless than females in their eating habits, there may be a physiological sex difference in the swallowing mechanism which is present throughout life.

The frequency of deaths from food asphyxia varied greatly with age. Infants suffered the highest mortality number. Forced spoon feeding and aspiration of regurgitated food are involved at this age and in the elderly. There has been a marked reduction in mortality in infants of both sexes in Canada over the period investigated. Although there was an overall decrease in mortality rates because of this, there was an increase in the rates among those over 40 years of age. This is the age at which a sharp increase in edentulousness occurs.⁶

Poor dental status has been consistently reported to be an important aetiological factor in the ingestion of foreign bodies^{8,9} and in most of the adult deaths attributed to food inhalation.^{1,2,10-12} Diminished masticatory efficiency resulting from loss of teeth was not compensated by more prolonged or more numerous chewing strokes;¹³ the subjects merely swallowed larger particles. Those unable to chew efficiently often attempt to swallow large pieces of

food in order to keep up with dinner companions. Of 55 deaths caused by food asphyxia, the largest piece of food found at autopsy was over 18 cm long and the average size approximated that of a package of cigarettes.¹ Ingestion of abnormally large pieces of food without any effort to fragment them with the teeth before attempting to swallow was believed to be the chief aetiological factor in adult fatalities from food asphyxia.¹²

Ill-fitting dentures increase the likelihood of foreign body accidents. When upper dentures lack retention, stability, or have a faulty posterior seal, the swallowing mechanism deteriorates.¹⁴ Fear of denture slippage tends to inhibit proper mastication of food. Detection of foreign objects in the mouth is hampered by upper dentures because of coverage of sensory structures in the hard palate. With advancing age, there is a reduction in the tactile sense in the mouth;⁸ and if a foreign body should pass undetected in the elderly patient, the cough reflex may not be sufficiently vigorous to expel it.

Drugs can change salivation, decrease gag and cough reflexes, and impair swallowing mechanisms.¹¹ Alcohol intake was frequently associated with café coronaries.^{2,3} Alcohol tends to increase talking, laughing and careless eating habits; and each of these while eating increases the risk of inhalation of food. Some of the elderly victims were receiving tranquilizers,¹⁵ but this was not a consistent finding.¹¹

Of the reports in the literature, only one had a control group.¹⁰ To clarify the role of dental status in deaths from food asphyxia, there is need for studies with matched controls. Although many in the population have poor dental status, relatively few are asphyxiated by food. Maintenance of good dental status is worthwhile for many reasons, and may help prevent these tragedies. This is an additional important reason to maintain an efficient masticatory apparatus. All patients should be made aware of the dangers of

incomplete chewing of food, and the increased risk of swallowing or inhaling foreign bodies when wearing dentures.

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Tusks . . .

Continued from page 262

proper conditions since, being of dental origin, it is subject to dental decay if certain bacteria are allowed to attack it.

The purposes for which ivory was used in times past were numerous, including making billiard balls, combs, inlaying of furniture, the handles of cutlery and other domestic articles and, of course, piano keys, from whence the expression "tickling the ivories" arises. For art and utility, there was nothing like ivory. The intricate activity of carving and etching designs on walrus tusks and whales' teeth that occupied the long, boring hours of the whalers of a bygone age constituted an art form known as scrimshaw. In its long, versatile history that portrays some of the earliest artistic efforts of man, ivory carvings have turned up in the form of holy crosses and deadly javelins; caskets for sacred relics

and pill-boxes for witch doctors; rosaries for prayer and dice for gambling; altars and King Solomon's magnificent throne; and, irony of ironies, ivory was used for artificial dentures by dentists of an earlier era (Fig. 17).

Summary

The overgrowth of incisor and canine teeth among various animals (narwhals, elephants, walruses, boars, hippopotami) to form tusks is discussed. A brief history of ivory from tusks is reviewed, and its use as a medium of art and as a denture material is portrayed.

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Dental care for patients with congenital haemorrhagic disorders

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Patients with hereditary haemorrhagic disorders often seem particularly prone to dental disease — not because of any hereditary deficiency or increased susceptibility, but because of their apprehension over bleeding from home care procedures and dentists' fears of secondary haemorrhage from dental treatment.

This situation is unfortunate and unnecessary. Dentists could familiarize themselves with the special problems associated with the treatment of these disorders; they will then gain confidence in themselves and inspire the patient's confidence in their ability to deal with this special problem.

Haematologic considerations

Normal clotting is dependent upon several factors:¹⁻⁴ a fully functional clotting mechanism, a sufficient number of functioning platelets and normal vascular endothelium. Disturbances in any or all of these factors can lead to increased, and at times, uncontrollable bleeding. The mouth and pharynx pose particular problems because of their vascularity, and the deficiency in soft tissues required for proper surgical closure of wounds. Involuntary movements of the facial musculature tend to dislodge forming clots, and saliva dilutes extracellular clotting factors which normally aid haemostasis. Protection of the wound is difficult, and the moist environment is an ideal culture medium for bacteria which lead to inflammation and infection.³

The treatment of these patients is based on four considerations:³ (1) the type and severity of the coagulation defect; (2) the presence or absence of clotting inhibitors; (3) the amount of appropriate procoagulant needed in the circulating blood for effective haemostasis; and (4) the rate of metabolic breakdown of the administered procoagulant.

Procoagulant deficiencies — The most important haemorrhagic diseases in terms of incidence and severity are haemophilia A (Factor VIII deficiency) and haemophilia B (Christmas Disease, Factor IX deficiency).⁵ Of these two

sex-linked, recessive disorders Factor VIII deficiency is approximately ten times more prevalent than Factor IX deficiency.¹ The incidence of these diseases is 3-4:100,000 of the population.¹ Other less common procoagulant deficiencies are Factor I deficiency (afibrinogenaemia), Factor II (prothrombin) deficiency, Factor V deficiency, Factor VII (stable factor) deficiency, and Factor XIII deficiency (fibrin stabilizing factor). Most of these appear to be autosomal recessive characteristics.¹ Except for Factor VII deficiency, they can often be satisfactorily treated by infusions of fibrinogen or fresh frozen plasma as the case may dictate.

Actual management of these genetically determined haemorrhagic disorders depends upon the patient's plasma defect and the type of dental treatment required. For example, surgical procedures usually require advance replacement of the deficient plasma factor. A circulating level of 30-40 per cent of the missing factors is sufficient for adequate haemostasis in most instances.¹⁻⁵ If, however, the factor has a relatively short biological half life, as in classic haemophilia A or Factor VII deficiency, large doses must be given at least every eight hours to maintain the minimum 30 per cent of the normal circulating levels during and after treatment. In contrast, patients with Factor I fibrinogen deficiency, in which the biological half life is approximately 96 hours, may be maintained by administering fibrinogen at three or four day intervals.

Platelet disorders — Platelets agglutinate on the injured blood vessel wall to form the initial haemostatic plug^{1,5,6} and contribute phospholipids which participate in the formation of fibrin. They also may assist in maintaining the endothelial integrity of the blood vessels.

Platelet disorders can be qualitative or quantitative. *In vitro* and *in vivo* observations have demonstrated the relationship between platelet concentration in plasma and the presence or absence of haemostasis.¹

Although earlier observations associated concentrations

of less than 100,000 per cubic mm with imperfect haemostasis, more recent clinical evidence indicates that the critical level is somewhat lower. Concentrations exceeding 50,000 per cubic mm are indeed thought sufficient for most surgical procedures.⁷ With proper replacement of platelets, oral surgery and other dental procedures can usually be accomplished without significant danger of haemorrhage. One should note, however, that many common analgesic preparations contain acetylsalicylic acid which tends to decrease platelet aggregation and thereby diminishes the efficiency of platelets. These preparations should be strictly avoided in patients suffering from any bleeding disorder.

In children, thrombocytopenic purpuras or deficiency in platelet numbers can be idiopathic (primary)⁷⁻⁹ or secondary conditions due to drugs,⁹ infection, tumours,^{8,9} or aplastic anaemia. Idiopathic thrombocytopenia (ITP) seems to be related to sensitization by virus infections⁹ and it appears that an immune mechanism is responsible for the condition. The acute phase of the disease usually lasts for approximately two weeks. As full recovery can be expected in three months for 75 per cent of patients,⁹ dental treatment should be delayed until the disease has run its course. In children, 90 per cent recover completely after 12 months and relapses are unusual. Only in about 2 per cent of patients does the disease become chronic⁹ and in this instance, as well as for emergency procedures during the acute phase of the disease, platelet concentrates can be given. However, the benefit of infused platelets is transient due to the sensitization reaction.^{7,9}

In patients with secondary thrombocytopenic purpuras, treatment may be delayed until the offending agent is withdrawn or the patient may be given platelet infusions prior to any injections of local anaesthetic or surgical procedure. In chronic cases platelet infusions will facilitate surgical and other dental treatment which may cause bleeding.

In adults, platelet disorders, regardless of the cause, are of two fundamental types: a deficiency in the production of platelets, or an increased rate of platelet destruction, either in the spleen or peripheral circulation. A larger proportion of adult thrombocytopenias are chronic.

In cases of decreased production, platelet infusions are usually successful in correcting the bleeding tendency. However, in the platelet destroying type of disorder, platelets are destroyed rapidly, and their effectiveness is short-lived.

Practitioners must be aware of the problems created by decreased renal function. In this instance, the platelets show decreased adhesiveness and aggregation potential, and corrective infusions of fresh platelets are not effective in correcting the disorder.

Vascular disorders — Several conditions such as congenital telangiectasia and Ehlers-Danlos syndrome can contribute to bleeding in the oral cavity;³ however, more often increased vascularity is due to infection and inflammation of the soft tissues. It is, therefore, most important that these conditions be treated prior to any surgical or restorative treatment on any patient.

Combination disorders

The commonest disorder of this type is Von Willebrand's Disease (pseudohaemophilia, haemogenia, capillary thrombopathy, hereditary angiostaxis). This condition is inherited as a simple autosomal dominant trait.^{1,10} Either sex may be affected, and the defect may be passed directly from the affected parent to his or her children. The main pathological finding is a greatly prolonged bleeding time and an increased rate of bleeding from needle punctures.¹⁰ Laboratory platelet tests are normal with the exception of platelet adhesiveness to glass beads, and abnormal platelet aggregation to ristocetin, which can be demonstrated in some instances. Vessels do not seem unduly fragile, but there appears to be a capillary defect whereby platelet adhesion *in vivo* is reduced.^{1,2,10-12} Diminished Factor VIII-like antigen appears to be the cause of some of the bleeding problems in these patients. In most cases, the Factor VIII level ranges from 5 to 20 per cent, resembling mild haemophilia A. In this case, the Factor VIII deficiency is not a sex-linked, but an autosomal dominant defect. The type of bleeding in Von Willebrand's Disease is quite different from that of haemophilia. The main sites of haemorrhage are from the mucous membranes; thus trauma to the mouth, throat, or nose produces serious and persistent bleeding.¹⁰ Unlike classic haemophilia, pressure tends to stop bleeding temporarily or permanently and infusion of Factor VIII (in the form of cryoprecipitate) or fresh-frozen plasma will, in most instances, alleviate the Factor VIII problem.

Dental Care

Dental treatment of patients with haemorrhagic disorders should be planned in consultation with the patient's haematologist or family physician. The treatment regimes outlined in the following pages have proved successful in the treatment of some 75 patients seen on a routine and emergency basis over a seven year period at the Winnipeg Children's Centre. No serious haemorrhages occurred as a result of dental treatment during that period.

Preventive dentistry — As in normal patients, prevention of dental disease required consumption of the proper foods, good oral hygiene and plaque control, and regular and continuing professional dental care. In patients with a bleeding disorder, their importance is magnified and can be a matter of life and death. It becomes extremely important that such patients follow good oral hygiene procedures. Early in life the children and their parents should be taught methods for plaque control; parents should also be made aware that any minor bleeding from dental hygiene procedures will most likely stop of its own accord or can be very simply treated. As the oral hygiene becomes better and the gingival tone improves, bleeding from oral hygiene procedures will cease to be a problem. As in normal plaque control procedures, disclosing solution and a soft brush are important for proper removal of gingival and subgingival deposits. But dental floss should only be used for interproximal cleaning if the

patient or the parent can master the procedure without causing undue trauma.

In the haemophilia clinic of the Children's Hospital, Winnipeg, we recall all children with bleeding disorders every three months for prophylaxis and topical fluoride applications. Diet analysis, using the method described by Coloway,¹³ and instruction in oral hygiene procedures have been used with great success in the clinic. Children in haemophilia clinics are often started as early as six months on a program of preventive dentistry and the results over the past six years have been extremely gratifying.

Anaesthesia — Much controversy exists regarding pain control during dental procedures in haemophilia patients. Some clinicians prefer general anaesthesia for these patients because of the risk of causing a haematoma, respiratory obstruction, and even death following local anaesthesia. Others prefer no anaesthesia at all, preferring hypnosis, analgesics and sedatives to ensure the patient's comfort.

Local anesthetic can be used safely in haemophiliacs if certain rules and precautions are observed. The first requirement is to provide replacement therapy prior to the use of a local anaesthetic.^{5,14} Adequate transfusions of blood, plasma, or plasma concentrates significantly reduce the risk of haematoma formation.

Block injections should be avoided because they are associated with a higher incidence of haematoma formation.³ In the mandible, where infiltration anaesthesia is not effective, sedatives or narcotic analgesics like meperidine or morphine can be given orally to raise the pain threshold. Nitrous oxide-oxygen sedation combined with local anaesthesia and meperidine will raise the pain threshold sufficiently for minor oral surgery and most restorative and endodontic procedures.

Fine, short needles (30 gauge) which do not penetrate deeply are preferred.¹⁴ Good technique dictates the use of an aspirating syringe and slow injection to create as little tissue trauma as possible.¹⁴ Injection sites should be confined to the facial aspects of the maxilla and mandible and the hard palate, avoiding the vestibular epithelium, the soft palate, and the lingual aspect of the mandible.¹⁴

Following the appointment, the parent and patient should be advised to watch carefully for restlessness, hoarseness, dysphagia, or swelling. Any of these symptoms may indicate haematoma formation in or around the oral cavity. If a haematoma forms, ice packs should be applied to the site and the patient taken to the hospital for emergency care and increased transfusion of the deficient factor.

Periodontal treatment — Treatment of the periodontium is one of the most neglected phases of dentistry in patients suffering from bleeding disorders. This neglect is dangerous since severe periodontal disease can provoke profuse, recurrent haemorrhage or necessitate the removal of one or more teeth — a major operation in patients with certain types of bleeding disorders. In either case, the patient will likely require vigorous supplementary systemic replacement therapy and prolonged hospitalization.

Simple dental prophylaxis and topical fluoride application can usually be performed in even severe bleeders with no significant risk of haemorrhage, provided meticulous care is exercised to avoid damage to the vascular gingival structures. This is usually possible without necessitating systemic replacement therapy. Bleeding resulting from pressure on the gingiva and the gingival crevice will usually stop even in the most severe Factor VIII deficiencies. When such bleeding becomes excessive, it may be controlled by dusting the site of origin with powdered bovine thrombin after thorough drying of the area.

Patients with severe periodontal disease can normally have extensive calculus removed without undue haemorrhage if it is done in stages. Initially, only the gross supragingival calculus should be removed followed by an interim period of seven to 14 days to allow substantial reduction of the inflammation and hyperaemia of the gingiva.³ Thereafter, the remaining calculus can be removed and the root surface can be planed. It is usually wise to treat only one quadrant at a time.

Periodontal zinc oxide-eugenol dressings may be used before and after surgery to reduce inflammation and aid haemostasis. They offer some protection by keeping saliva from the gingival tissues, producing some pressure on the area, and exerting an antibacterial effect.³ Small bleeding areas on the gingiva may also be controlled using topically applied powdered bovine thrombin in conjunction with the periodontal pack.

If the patient has deep infrabony or deep tissue pockets which necessitate repeated probing and curettage, it is advisable to give replacement therapy prior to treatment. Minimum factor levels of 30 per cent of normal are required before, during, and after surgery. Postoperative levels will depend upon the clinical picture and whether haemorrhage subsequently threatens. For all periodontal procedures an adequate amount of the necessary factors should be available in case of postoperative bleeding that cannot be controlled using local measures.

Restorative dentistry — Most restorative procedures can be performed without difficulty in patients with bleeding disorders using the same techniques (except anaesthesia) as in normal patients. Since the use of rotary and sharp hand instruments in the vicinity of soft tissues is routine, special precautions must be taken to avoid lacerating these tissues.

Routine use of the rubber dam is extremely helpful in this respect. Application of rubber dam clamps may cause some bleeding; as a rule, it will stop spontaneously even in the most severe haemophiliacs. It is advisable to avoid using Ivory 8A or 14A clamps which tend to slide down into the tissues and lacerate them. Ivory 201 or the SS White 22 clamps may be substituted instead. Although they exert pressure on the gingiva, these clamps do not cut or lacerate. Extra care should be taken when passing the rubber dam through contacts with dental floss and when placing and removing the rubber dam clamps.

Intracoronar restorations with amalgam, acrylic resin, and gold are usually handled without difficulty in these patients. However, extracoronar restorations such as crowns and fixed bridges may necessitate specific replacement therapy, depending on the type and the severity of the bleeding disorder and the extent of the anticipated soft tissue damage during preparation.

Endodontic procedures — Endodontic treatment is highly recommended in patients with bleeding disorders, for it may avert the need for tooth removal. Routine conservative endodontic techniques familiar to most dentists can be used including complete pulpectomy, partial pulpectomy, and pulpotomy in the primary and permanent dentition. The procedures are the same as for normal patients and as a general rule, haemorrhage is minimal and easily controlled with no need for replacement therapy in most cases. Extra care should, however, be taken during instrumentation so that periapical tissue is not unduly traumatized.

Oral surgery — Prior to oral surgery in a patient with a haemorrhagic disorder, it is necessary to replace the missing factors by administering whole blood, plasma, or plasma fractions. For severe bleeders, plasma fractions such as antihaemophilic globulin in the form of cryoprecipitate and Factor IX concentrate are more effective and, indeed, necessary for proper maintenance of procoagulant levels. Though bleeding disorders differ in their severity, any person with such a disorder and requiring oral surgery should always be treated as if a severe defect were present. When dealing with bleeders there are no minor surgical procedures. Procoagulant levels greater than 20-30 per cent of normal are required to ensure adequate control of haemorrhage.

Single tooth extractions are less likely to cause severe bleeding than multiple extractions.¹ However, it does not follow that a severe bleeder must be limited to the removal of just one tooth when there may be 10 or 20 teeth which may require eventual removal. Nor is it necessarily advisable to remove 20 teeth at one time. Rather, a decision by all clinical disciplines involved must be reached on the basis of the nature and severity of the disorder, the availability of transfusion media, and the nature of the required surgery. As with normal patients, multiple extractions or other oral surgical procedures in a patient with a haemorrhagic disorder depend on basic surgical principles, including (1) elimination of local infection, (2) aseptic preparation of the surgical field, (3) adequate exposure of the operative field to minimize trauma to neighbouring structures, (4) maintenance of the blood supply to the tissue, (5) maintenance of surgical haemostasis, and (6) proper closure of the surgical site.^{2,3}

General anaesthesia may be necessary during extensive surgical procedures. Since local anaesthesia causes fewer complications, however, this method is preferable where practicable and where efficient pain control can be established.

Primary postoperative haemostasis is achieved by heeding the basic principles of oral surgery and using systemic replacement therapy. Local measures which should receive particular consideration are (1) the removal of osseous fragments and granulation tissue from the surgical site, (2) crushing bone over bleeding areas of the alveolar process, (3) sealing canals with bone wax, and (4) pressure to obtain primary haemostasis. Lucas¹⁵⁻¹⁷ and others¹⁸⁻¹⁹ advocate a combination of absorbable haemostatic agents and topical thrombin to aid haemostasis. Lucas saturates oxidized regenerated cellulose with bovine thrombin which has been dissolved in 0.5 per cent sodium bicarbonate solution. This material is deposited in the depth of the socket after the latter has been thoroughly dried. Further layers are added until the entire socket is filled. The wound is then covered with a haemostatic pack or splint. Lucas has even used this technique in several patients with moderate or mild haemophilia A where extractions were done without supportive systemic therapy (a procedure not recommended by haematologists).

Splints have been used extensively by some practitioners in postoperative management of patients with bleeding disorders. They are usually constructed of clear acrylic and may have wire clasps for retention and stability or may be cemented in younger children. A splint should fit well without creating pressure on the extraction site. The borders of the splint should extend into the buccal and lingual sulci but should not impinge on the soft tissue in these areas. The primary function of a splint is to protect the extraction site from trauma, and not to assure haemostasis through pressure.

Sutures should be avoided when possible in patients with haemophilia A or B. In these patients they are never used as a primary means of preventing or controlling haemorrhage. They may, however, be properly used to approximate soft tissue margins to facilitate more rapid healing. In patients with Von Willebrand's Disease, suturing may, in fact, offer primary control of bleeding sites; therefore, it is indicated more often in this condition.²⁰ Resorbable suture material is mandatory when sutures are used in any form of bleeding disorder as this eliminates the need for their subsequent removal and possible recurrent haemorrhage at the wound site.

Not uncommonly, secondary haemorrhage will occur 24 or more hours after surgical procedures have been performed. Where this happens, it may be necessary to remove the splint, sutures, or haemostatic pack covering in order to locate the bleeding point. Once it is found, the bleeding point may be ligated or occluded by pressure, or clotting may be attained through the use of powdered bovine thrombin and the wound reclosed.

Throughout these procedures, adequate replacement therapy must be maintained to ensure satisfactory levels of procoagulant. Normally, these levels should be continued for five to 10 days following surgery until the wound has healed adequately.

Attempts to control bleeding by the use of strong chemi-

al cauterizing agents and electrosurgical units should be discouraged. Although they initially appear to control haemorrhage, the concurrent tissue damage and necrosis which they cause will inevitably lead to more serious bleeding from the wound site.

Local haemostatic aids can be beneficial in treating patients with bleeding disorders, but systemic replacement therapy is indispensable in most cases.

Apart from specific procoagulants various systemic drugs have been used to enhance haemostasis. Numbered among these are vitamin preparations, steroids, adrenochromes, and antifibrinolytic drugs. All of these have been generally unsuccessful. Recently, several investigators²¹⁻²⁵ have described the successful use of systemic epsilon aminocaproic acid (EACA) to eliminate or reduce the need for systemic replacement therapy in haemophilia A and B. Giordano²¹ suggests EACA in conjunction with thrombin and oxidized cellulose to control bleeding in haemophilia without replacement therapy. However, others²²⁻²⁵ have used this drug in conjunction with a loading dose of the missing factor. Bjorlin²⁶ has shown that amino methylcyclohexane carboxylic acid (AMCA) had the same effect as EACA when patients were first given an initial loading dose of the missing factors. Although dizziness and gastric upsets have been reported with these drugs, seldom were the effects severe enough to compel discontinuation of their use. Although experience thus far would suggest that these agents could substantially reduce the necessity for intravenous therapy, recent problems with EACA suggest that systemic therapy may be contraindicated because of hypersensitization reactions and problems in kidney function, and the clogging of renal tubules during episodes of haematuria.

Prosthodontics — Both partial and complete prosthetic appliances are tolerated well by the patient with a bleeding disorder. Ill-fitting prostheses may cause mucosal bleeding but a well constructed denture can be worn without fear of haemorrhage.

Summary

Although dental care for patients with bleeding disorders presents special problems to the dental practitioner, most patients can be given routine non-surgical treatment in the dental office. In all cases, it is advisable to work closely with the patient's haematologist in the planning and execution of treatment. It is of particular importance that these patients be started on a vigorous program of preventive dentistry in order to minimize treatment needs. Once the dentist gains confidence in his ability to care for these patients, their treatment becomes a rewarding, satisfying experience and a valuable service for those whose dental treatment needs differ from those of the remainder of the population.

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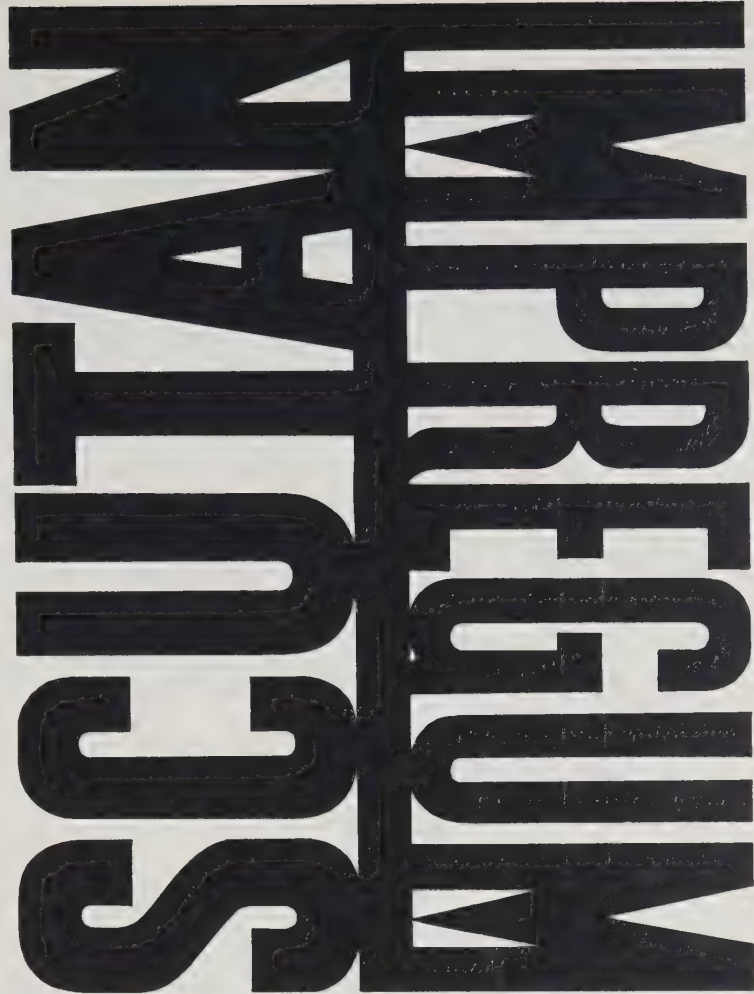
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MANITOBA — Winnipeg area. General dentist, age 30, married, seeks association in group practice, within a 50-mile radius of Winnipeg. Post-graduate qualifications in oral surgery and orthodontics (2 years hospital resident). Possesses Manitoba licence. Available immediately. Would prefer practice with view to permanency. Please reply to CDA Box Number 1591.

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University of British Columbia,
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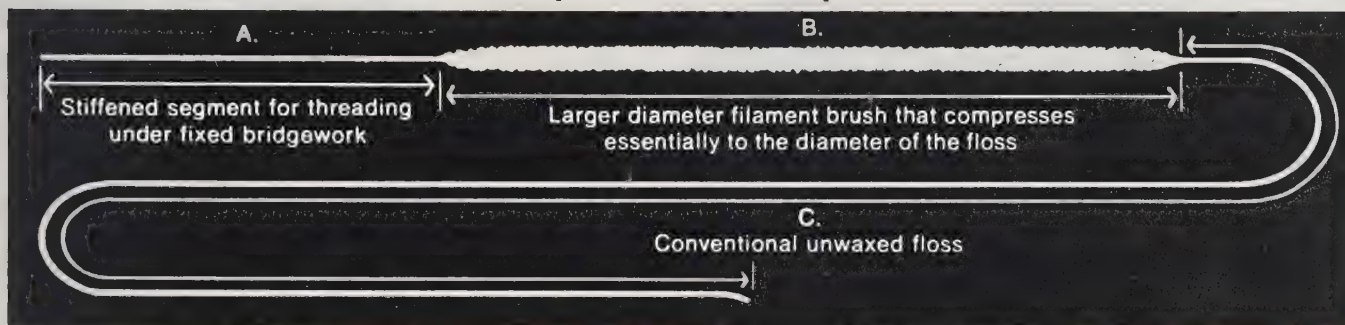
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If wife/husband attending, name _____

Address to which all correspondence should be sent

The Registration Fee for CDA members is \$75.00. Canadian Dentists who are not CDA members, please add \$25.00. Dentists' wives/husbands may register without charge.

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279



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Edmonton, Alberta/du 12 au 15 septembre 1976

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HEURE _____

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ENVOYER TOUTE CORRESPONDANCE
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Les frais d'inscription pour les membres de l'ADC s'élèvent à \$75.00. Les dentistes canadiens non-membres de l'ADC sont priés d'ajouter \$25.00. Les conjoints des dentistes peuvent s'inscrire sans supplément. Rédigez votre chèque à l'ordre du:

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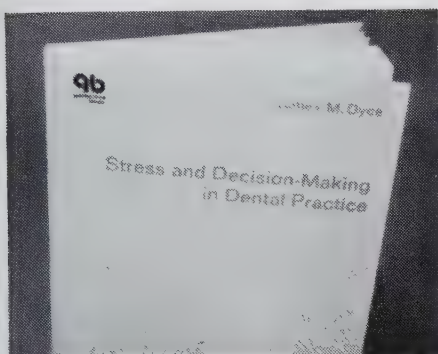
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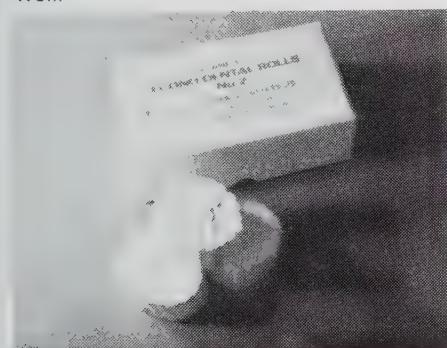
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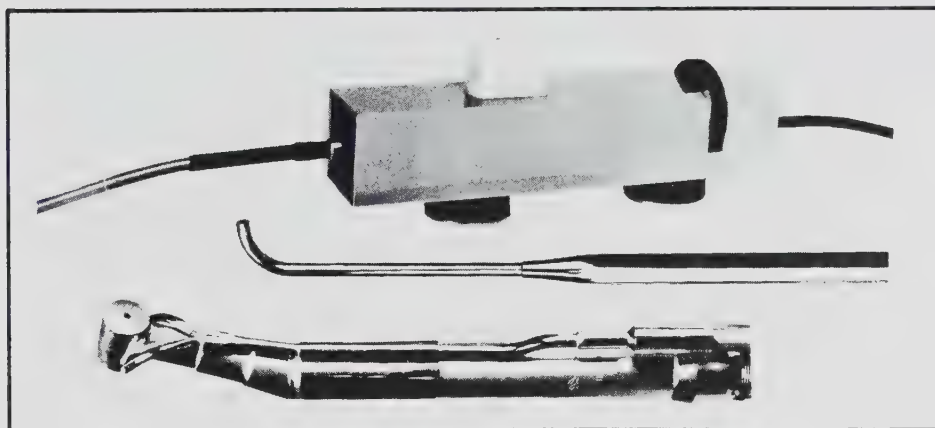
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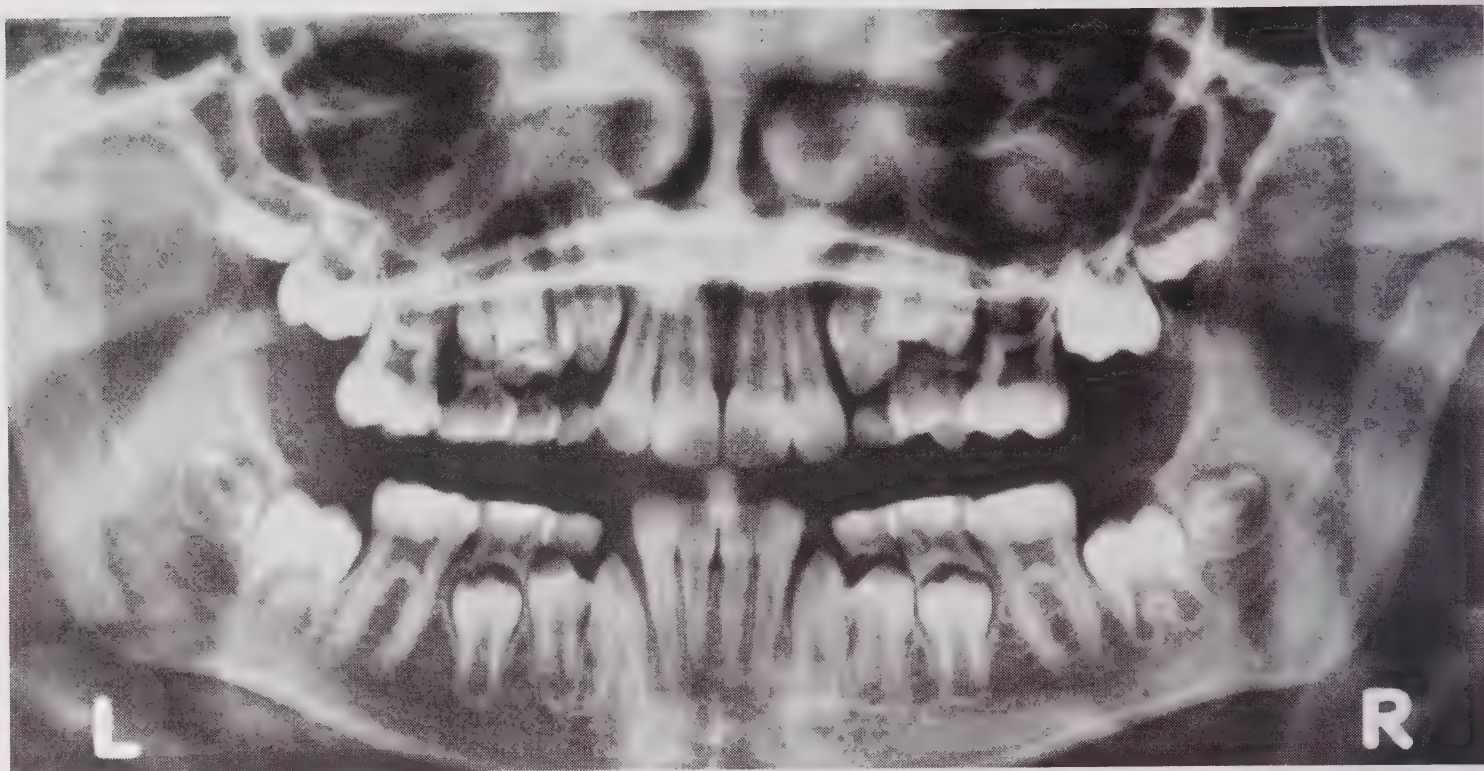
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CANADIAN DENTISTS NOTE: APPLIED HEALTH SERVICES FILES BANKRUPTCY

Applied Health Services, Inc. of Opa Locka, Florida has filed a petition in the U.S. federal courts, under Chapter 11 of the federal bankruptcy laws, to re-organize. A number of Canadian dentists have sent complaints to the company and the CDA concerning non-delivery of goods and the lack of refunds.

Under Chapter 11 of the federal bankruptcy laws in the United States, a company may continue to operate and to enjoy court protection against lawsuits by creditors while the company attempts to work out a plan for paying its debts, usually some amount less than 100 cents on the dollar.

The volume of complaints lodged against Applied Health Services was apparently sufficient to cause an investigation by the Florida attorney general, at the request of the American Dental Association and several dental societies. The April issue of the CDA Journal carried information about the situation in the Letters to the Editor column. The report of the filing was carried in the April 30 edition of the Wall Street Journal.

Any Canadian dentist with orders on file with Applied Health Services should contact: Stephen V. Rosin, Assistant Attorney General, Consumer-Counsel, State of Florida, Department of Legal Affairs, Office of the Attorney General, Tallahassee, Florida 32304.

NOVA SCOTIA REVERSES DENTAL PLAN DECISION

The Government of Nova Scotia has reversed an earlier decision that would have dropped eight and nine-year olds from coverage under the provincial children's dental plan. While the age level continues as before, the plan has been cut back in several respects: hygiene instruction has been discontinued; cleaning and scaling of teeth is limited to one treatment a year instead of two and fluoride applications can only be applied in conjunction with cleaning at a reduced package fee of \$12 a year, limited to one patient. Each child in the plan will now be limited to one initial or periodic examination per dentist per year and to a maximum allowance of \$6 for diagnostic x-rays. Necessary pulp capping or preparation will be included in the fee for tooth restoration.

The Health Minister stated the plan would authorize more frequent provision of a "limited service" treatment where it was a dental necessity. The Ministry is also attempting to determine whether the cost of child dental care is reduced with a preventive plan undertaken during the formative years.

SYDNEY WOOD BRADLEY MEMORIAL LIBRARY CLOSES TORONTO SERVICES

In preparation for the late summer move to the new CDA headquarters in Ottawa, the Sydney Wood Bradley Memorial Library closed its Toronto services on June 4. Dentists who use the "borrow by mail" service or visit the library for references are advised to hold future requests until the library is re-established in Ottawa. New rules and regulations will be published in the Journal when service is resumed.

AVERTISSEMENT AUX DENTISTES CANADIENS: APPLIED HEALTH SERVICES EN FAILLITE

La Compagnie Applied Health Services Inc., d'Opa Locka, Florida, a déposé une demande de réorganisation, en vertu du chapitre 11 de la loi fédérale sur les faillites. Un grand nombre de dentistes canadiens ont adressé des réclamations à la compagnie et à l'ADC en ce qui concerne la non-livraison de marchandises et des remboursements non effectués.

En vertu de chapitre 11 de la loi fédérale des Etats-Unis sur les faillites, une entreprise peut être exploitée et bénéficier de la protection des tribunaux contre des poursuites entreprises en justice par les créanciers, pendant qu'elle essaye de trouver une méthode pour payer ses dettes, cette méthode consistant en général à verser une somme inférieure à 100 cents par dollar.

Un tel nombre de plaintes ont été déposées contre la Compagnie Applied Health Services que le procureur général, à la demande l'American Dental Association et de plusieurs autres associations dentaires, a ouvert une enquête à ce sujet. Le numéro du mois d'avril du Journal de l'ADC renseignait les lecteurs sur la situation dans la rubrique "Courrier des lecteurs". Le Wall Street Journal du 30 avril annonçait le dépôt du bilan de la Compagnie.

Nous invitons les dentistes canadiens ayant passé des commandes à Applied Health Services à se mettre en rapport avec: Stephen V. Rosin, Assistant Attorney General, Consumer-Counsel, State of Florida, Department of Legal Affairs Office of the Attorney General, Tallahassee, Florida 32304.

LA NOUVELLE-ECOSSE ANNULE LA DECISION PRISE A L'EGARD DU REGIME DENTAIRE

Le gouvernement de la Nouvelle-Ecosse vient d'annuler la décision antérieure qu'elle avait prise en ce qui concerne l'exclusion des enfants de huit et neuf ans du régime provincial dentaire à l'égard des enfants. Bien que le niveau d'âge soit maintenu comme auparavant, le régime a subi certaines restrictions: l'enseignement de l'hygiène est abandonné; le nettoyage et le détartrage sont restreints à un seul traitement par an au lieu de deux et les applications de fluorure ne peuvent se faire qu'en conjonction avec le nettoyage, au coût réduit d'ensemble de \$12 par an, limité à un patient. Chaque enfant participant au régime n'aura droit qu'à un examen initial ou périodique par dentiste par an et à une prestation maximale de \$6 pour des radiographies diagnostiques. Le coiffage ou la préparation nécessaires de la pulpe seront compris dans les honoraires s'appliquant à la restauration de la dent.

Le ministre de la santé a déclaré que le régime autoriserait des traitements de "service limité" plus fréquents lorsque ceux-ci représenteraient une nécessité du point de vue dentaire. Le ministère essaye également de déterminer s'il y a diminution du coût des soins dentaires pour les enfants lorsque ceux-ci bénéficient d'un programme préventif au cours des années formatives.

LE CONGRES DE LA FDI A ATHENES PROVOQUE BEAUCOUP D'INTERET

D'après le grand nombre de demandes de renseignements concernant le Congrès dentaire mondial annuel prévu à Athènes, du 25 septembre au 1er octobre de cette année, de nombreux dentistes envisagent y participer.

Veuillez cependant prendre note: si vous avez l'intention de vous rendre au Congrès, mais que vous ne soyez pas encore inscrit, faites-le dès maintenant car le nombre de bonnes chambres d'hôtel à Athènes est limité. L'ADC organise des vols nolisés vers la Grèce ainsi qu'un programme de vacances très complet, avant et après le Congrès. Vous obtiendrez des brochures descriptives et des formules de demande en écrivant aux bureaux de l'ADC, 234 St. George St., Toronto M5R 2P2

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JOURNAL

of the Canadian Dental Association
de l'Association Dentaire Canadienne
June/Juin 1976/Volume 42/No 6

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Regular Features

Letters to the editor	288
Dentistry in the news	290
Convention news	297
Les actualités dentaires	298
Deaths	294

Articles

Pain and pain control:	
Comparison of the effects of floctafenine and codeine on postsurgical pain — Daigle et al.	301
Temporomandibular pain-dysfunction: a suggested classification and treatment — Speck and Zarb	305
Improving your relationship with your pharmacist — Brown	311

Classified advertising	316
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Advertisers' index	320
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Veuillez nous prévenir avant le 10 du mois de tout changement d'adresse pour recevoir le journal à votre nouvelle adresse le mois suivant.

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La direction du Journal ne partage pas nécessairement les opinions qu'expriment ses collaborateurs à moins que l'Association Dentaire Canadienne ne les ait adoptées officiellement.

Announcements/Avis

Information about other meetings or courses, including American continuing education courses, may be obtained by writing to CDA headquarters.

Canadian Dental Association

1976, Edmonton, Alta, Sept. 12-15.

Fédération Dentaire Internationale

1976, Athens, Greece, Sept 26-Oct 2;
1977, Toronto, Oct 22-28.

Canadian Meetings

Canadian Society of Oral Surgeons, at Halifax. July 24-27, 1976. D.J. Murphy, 1773 Beech St., Halifax, N.S.

Canadian Academy of Oral Radiology, at Edmonton. Sept. 12, 1976. Dr. C.E. Hawrish, 1512 North East 62nd St., Seattle, Washington 98115, USA.

Canadian Occlusion Symposium, at Chateau Lacombe, Edmonton. Sept. 12-13, 1976. J.N. Nasedkin, #415, 925 West Georgia, Vancouver, B.C. V6C 1R5.

Canadian Academy of Endodontics, at Chateau Lacombe, Edmonton. Sept. 14-15, 1976. Dr. H. Wiener, 4141 Sherbrooke St. W., Suite 515, Westmount, Que. H3Z 1B8.

Canadian Society of Forensic Science, at Quebec City. Oct. 13-15, 1976. Dr. R.B.J. Dorion, Canadian Society of Forensic Science, 63 Kilbarry Cres., Ottawa, Ont. K1K 0H2.

Montreal Dental Club Pre-Convention Seminar, at Montreal. Nov. 13-14, 1976. Miss M. Komarnicka, 4166 St. Catherine St. W., Montreal 215, Que.

Montreal Dental Club Fall Clinic, at Montreal. Nov. 15-17, 1976. Miss M. Komarnicka, 4166 St. Catherine St. W., Montreal 215, Que.

Les Journées Dentaire du Québec, at Quebec Hilton, Quebec. May 22-26, 1977. Dr. M.R. Lang, 5171 Decarie Blvd, Montreal, Que. H3W 3C2.

Special examination

Royal College of Dentists of Canada Special Prosthodontics Fellowship examination will be held during the week of June 20, 1977.

Application forms may be obtained from the Royal College of Dentists of Canada, Suite 614, Medical Arts Building, 170 St. George St., Toronto, Ont. M5R 2M8.

International Meetings

British Dental Association, at Blackpool, England. June 14-17, 1976. S.R. Bragg, 64 Wimpole St, London W1, England.

European Organization for Caries Research, at Szeged, Hungary. July 15-17, 1976. Prof. K. Toth, 6720 Szeged, Lenin Krt. 64-66, Hungary.



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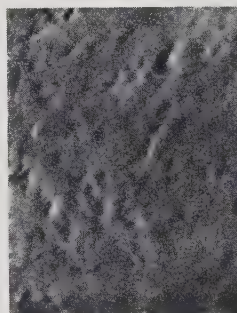
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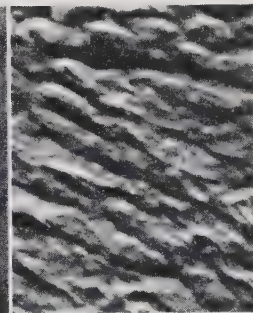
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Announcements . . .

Continued from page 286

International Association of Dental Students Annual Congress, at Bern, Switzerland. July 30–Aug. 9, 1976. Dr. T. A. Shapero, 170 The Donway West, Ste 108, Don Mills, Ont. M3C 2G3.

New Zealand Dental Association, at Wellington, New Zealand. Aug. 23–27, 1976. Dr. M. J. Hollis, NZDA Conference, PO Box 2214, Wellington, New Zealand.

American Society of Oral Surgeons, at New York. Sept. 17–21, 1976. American Society of Oral Surgeons, 211 East Chicago Ave., Chicago, Ill. 60611, USA.

American Academy of Implant Dentistry, at Las Vegas. Nov. 11–13, 1976. American Academy of Implant Dentistry, 469 Washington St., Abington, Mass. 02351, USA.

American Prosthodontic Society, at Las Vegas. November 12–13, 1976. R. B. Underwood, 919 North Michigan Ave., Ste. 2108, Chicago, Ill. 60611, USA.

American Dental Association, at Las Vegas, Nevada. Nov. 14–18, 1976. Convention Bureau, American Dental Association, 211 East Chicago Ave., Chicago, Ill. 60611, USA.

American Academy of Periodontology, at San Francisco. Nov. 17–20, 1976. Miss M. Holmquist, 211 East Chicago Ave., Ste. 924, Chicago, Ill. 60611, USA.

International Congress of the Association Dentaire Française, at Paris, France. Nov. 30–Dec. 4, 1976. Dr. J. Charon, Association Dentaire Française, 22 avenue de Villier, 75017, Paris, France.

American Society for the Advancement of Anesthesia in Dentistry, Congress on Modern Pain Control, at Monte Carlo, Monaco. Dec. 7, 1976. Dr. A. Reyes-Guerra, 475 White Plains Rd, Eastchester, NY, USA.

LETTERS TO THE EDITOR

QDSA requests correction

I am taking this opportunity of writing to you with regard to an item which appeared in both the French and English news sections of the March issue of the Journal.

The Quebec Dental Surgeons Association's objection to the Dental Services Program for Social Welfare Recipients is based mainly on two key areas: the government-imposed program and the limitations on treatment allowed to social welfare recipients.

Therefore, summarizing the Association's objections to the government plan, our President, Dr. Claude Chicoine, stated: "What we want is a more comprehensive dental program for social welfare recipients in the province; one that includes more preventive dentistry. We want a program that is negotiated with the dentists of Quebec and not one that is imposed by the government. Essentially, what we want is government respect for our profession. We will not accept working conditions arbitrarily imposed upon us."

With the slight change in the terminology used above, I believe that the position taken by the QDSA is presented in the manner that it was proposed and adopted by the Board of Governors.

*Clyde Covit, DDS
Chairman of the Board,
Quebec Dental Surgeons Association*

Dentifrices and mouthwashes

I have had some experience over the past year with patients who seem to be reacting to various commercial dentifrices, particularly "Crest" and "Macleans". The form of reaction is a "whitening" of the mucosal tissues from, what seems to me, a chemical astringent reaction. Has anyone else had the same experience?

I would also like to have co-operation in reducing the usage of chemical mouthwashes among patients. Particularly "Listerine" as this seems to cause "reddening" of the tissues.

I would also like to learn of any method whereby we could relieve periodontosis, periodontitis, osteoclasia and attrition among East Indian nationals who have migrated from Africa to Canada. I am having considerable problems with these cases here. The percentage of persons so affected seems to be quite high. Any help, any ideas, would be appreciated.

*E. Schumacher, DDS
New Westminster, B.C.*

Editor's note: Procter and Gamble Company of Canada Ltd. and Beecham Canada Limited have replied directly to Dr. Schumacher, enclosing clinical studies on allergic reactions or possible oral sensitization to the flavoring oils.

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W. G. McINTOSH RESIGNS AS CDA EXECUTIVE DIRECTOR

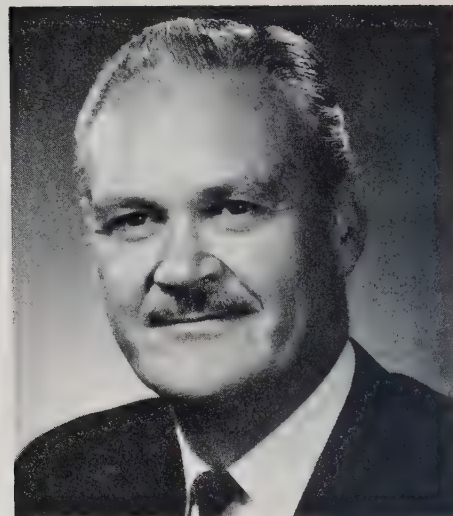
William G. McIntosh officially resigned as Executive Director of the Canadian Dental Association on June 1, 1976. In that capacity, Dr. McIntosh represented Canadian dentistry at the national and international level for more than 11 years.

A native of Hanley, Saskatchewan, Dr. McIntosh graduated from the University of Toronto's Faculty of Dentistry in 1937. He received his Master of Science in Dentistry from the same university in 1957. He practised dentistry in Trenton, Oshawa and Toronto and, from 1942 to 1946, served with the Royal Canadian Dental Corps as a Major. Following his military service, he returned to practise in Toronto until 1964, specializing in periodontics. During this period, Dr. McIntosh served as an associate professor of

periodontics at the University of Toronto and a consultant at the Hospital for Sick Children and at Sunnybrook Hospital.

Over the years, he has served on many committees of the Canadian Dental Association. He was a member of the Association's Board of Governors from 1957 to 1961 and was elected president of the CDA for the 1959-1960 term of office. In September, 1964, he was named secretary of the Association, taking over the position on a full-time basis in January, 1965.

Dr. McIntosh was chairman of the Research Committee of the American College of Dentists from 1957 to 1958. He is a Fellow of the Royal College of Dentists of Canada and of the American and International College of Dentists.



W. G. McIntosh

He is a member of the Canadian and American Academies of Periodontology and served as president of the Canadian Academy in 1958-59.

Dr. McIntosh currently serves as a vice-president and national treasurer for Canada for the Fédération Dentaire Internationale and was recently appointed by the Director-General of the World Health Organization to serve as a member of the WHO Expert Advisory Panel on Dental Health.

During his career, Dr. McIntosh has been accorded many honors in recognition of his service to his profession. He is an honorary member of both the American and British Dental Associations and holds an honorary doctor of laws degree conferred on him by the University of Saskatchewan.

SUMMER EMPLOYMENT PROGRAM FOR ALBERTA DENTAL STUDENTS

The Alberta Dental Association has developed a program which would allow dental students to gain practical experience during the summer months. The program concept has been approved by the ADA Board of Directors and by the University of Alberta's Faculty of Dentistry and the proposed by-law amendment to the provincial Dentistry Act has been submitted to the Lieutenant-Governor in Council for approval. It is expected that the program will get underway this summer.

The draft by-law to allow students to practise during the summer under supervision reads as follows:

"Undergraduate dental students taking a course of instruction and in good standing in the Faculty of Dentistry at the University of Alberta may be employed under the direct (in office) supervision of a member of the Alberta Dental Association to practise dentistry. The services that a student may provide directly to a patient shall be limited to procedures that he has been taught during the course of studies and is competent to perform under the stated supervision.

"A temporary licence must be applied for by the student for the term of

employment. Included with the application shall be:

1. Certification of level of teaching and competence from the University of Alberta Faculty of Dentistry.
2. Employer's name and address.
3. Proof that employer will provide necessary liability insurance and direct (in office) supervision.

"A student will be permitted to practise only upon receipt of written permission to do so by the Registrar of the Alberta Dental Association or his delegate. This permit will delineate the procedures that the student will be allowed to perform."

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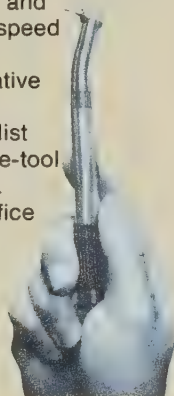
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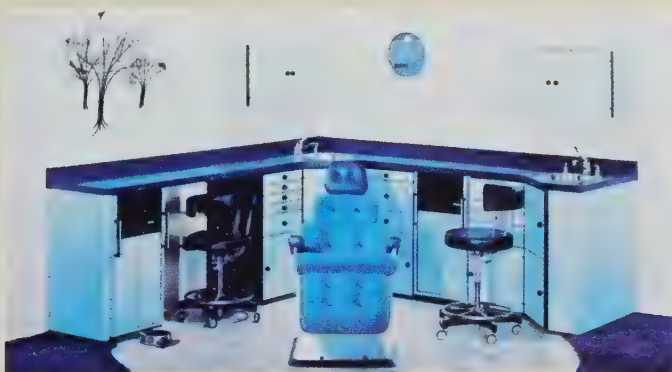
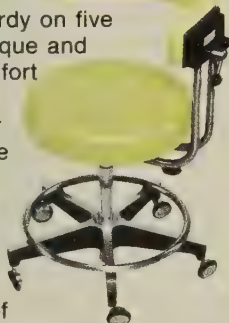
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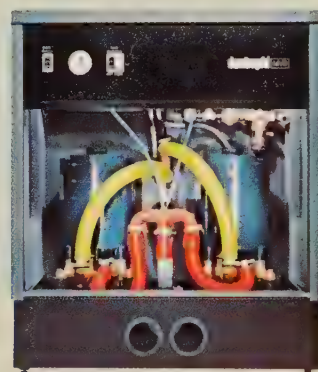


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AIB REQUIRES APPROVAL OF PROVINCE-WIDE FEE SCHEDULES

Province-wide schedules for professional fees must be approved by the Anti-Inflation Board if practitioners are to enjoy reduced reporting procedures.

Once a new province-wide fee schedule has secured AIB approval, practitioners will be required to attest on a compliance form to their participation in the schedule. When the fee schedule is not approved by AIB, or when practitioners opt out of an approved schedule, then the practitioners must submit detailed reports to the Anti-Inflation Board.

It is suggested that associations which have issued fee guidelines in the past should submit their revised fee guides to the AIB, together with a statistical analysis demonstrating that the increases in the revised guide are estimated to return to a typical and average practitioner only his increased expenses plus \$2400.

The Ontario and Alberta Dental Associations have now met with AIB officials and have submitted their 1976

Fee Guidelines for General Practitioners for approval.

A recent meeting between CDA representatives and members of the Anti-Inflation Board resulted in the following interpretation of compliances with AIB guidelines:

"That where a provincial dental association issues a fee guide and the increases in the guide are demonstrated to the Board to be only sufficient, in the case of the average practitioner, to recover his increased expenses and improve his income by \$2400 in the 12-month period covered by the guide, then any practitioner who follows such a guide in the period prior to the adoption and in the 12 months following its adoption will be deemed to have complied with the AIB guidelines."

If an association wishes to put a revised fee guide into effect prior to its approval by the Board, they should warn their members that adjustments will have to be made if the Board approves lesser fees.

D. C. SMITH HONORED FOR RESEARCH

D. C. Smith of Toronto was presented with the Clemson Award for basic research in biomaterials during the recent International Symposium on Biomaterials held in Philadelphia. The symposium was organized by the Society for Biomaterials.

The presentation was made in recognition of Dr. Smith's work in biomaterials research, particularly in relation to acrylic bone cements and poly-

carboxylate dental cements. The award, given annually by the Society for Biomaterials, is sponsored by Clemson University of South Carolina. Dr. R. C. Edwards, president of the University, made the presentation.

Dr. Smith is professor and chairman of the dental materials science department of the University of Toronto's Faculty of Dentistry.

AWWA ANNOUNCES SUPPORT OF FLUORIDATION

The American Water Works Association recently adopted the following policy statement on the subject of fluoridation:

"In view of the endorsement and resolutions of the American Dental Association, the Canadian Dental Association, the American Medical Association, the Canadian Medical Association, and the Health League of Canada, AWWA supports the prac-

tice of fluoridation of public water supplies in conformance with the standards set by the appropriate regulatory agencies."

Prior to adopting this position in support of the concept of fluoridating public water supplies, the AWWA stand was conservative in that they simply allowed their engineers to participate where local health authorities advocated fluoridation.

ADA Council accepts Macleans Toothpaste

The May issue of the Journal of the American Dental Association contained a Council on Dental Therapeutics' report announcing the acceptance of Macleans Fluoride Toothpaste as an effective agent in helping to reduce the incidence of dental decay when use is included in an appropriate program of oral hygiene and regular professional care.

It should be noted in the light of the recent publicity relating to chloroform causing cancer in laboratory animals, that Macleans Fluoride Toothpaste does not contain chloroform as a flavoring ingredient, nor does any other toothpaste accepted by the ADA Council on Dental Therapeutics.

Canadian Society of Oral Surgeons

The Canadian Society of Oral Surgeons has elected its executive officers to serve until the Society's 1977 annual meeting. They are: F. W. Lovely of Halifax, president; G. Maranda of Quebec, president elect; D. S. Precious of Halifax, secretary; and J. H. Gryfe of Weston, Ontario, treasurer. S. M. Claman of Winnipeg is past president.

The Society's 1976 annual meeting will be held in Halifax, July 24 to 27.

Our mistake

The Journal has been requested to publish a correction to the news item entitled "CDNAA launches independent study program for dental assistants across Canada" which appeared on page 114 of the March issue. The story stated, in error, that the programs of independent study for dental assistants proposed by the Canadian Dental Nurses and Assistants Association had been accredited by the Canadian Dental Association. These programs are not accredited by CDA.

Good enough to be the only one.



Instead of being a second toothpaste, Sensodyne can be recommended as the only toothpaste a patient with sensitive teeth need use. The strontium ion in Sensodyne's formula is absorbed to the dentin and cementum to block pain impulses.

Independent tests* have also proven Sensodyne's polishing effectiveness and ability to aid in removing plaque. So using Sensodyne as an adjunctive toothpaste is unnecessary.

And Sensodyne's pleasant flavour encourages regular brushing. Combining

Quality products for dental health.

Sensodyne's two-way action dentifrice and the Py-co-pay Softex toothbrush provides the ultimate in preventive care for hypersensitive teeth.

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*Reference available on request.

INCORPORATION OF DENTAL PRACTICES IN ALBERTA

Bylaw 18 of Alberta's Dental Association Act, which allows the incorporation of dental practices in the province, was approved by the Lieutenant-Governor in Council on February 24, 1976.

This new legislation was approved by the Board of the Alberta Dental Association and presented to the provincial Cabinet following the passage of Bill 68, the Incorporation of Practices Bill, by the Alberta Legislature. Bill 68 opened the way for dentists, along with physicians, lawyers and architects in the province, to incorporate.

Dentists planning to incorporate their practices will be interested in a letter of interpretation of Bill 68 received by the ADA from the Technical Interpretations Division of the Income Tax Department. The letter, dealing specifically with the problem of whether professional corporations controlled by related persons are considered to be associated, states:

"Pursuant to paragraph 256(1) (c) of the Income Tax Act one corporation is associated with another in a taxation year if at any time in the year, each of the corporations was controlled by one person and the person who controlled one of the corporations was related to the person who controlled the other,

and one of those persons owned, directly or indirectly, in respect of each corporation, not less than 10 per cent of the issued shares of any class of the capital stock thereof. Individuals connected by blood relationship, marriage or adoption are related to each other for purposes of the Income Tax Act.

"The word 'control' is not defined in the Income Tax Act, but the Courts have held that the word 'controlled' contemplates the right of control that rests in ownership of such a number of shares as to give a majority of the voting power in the corporation.

"Corporations would not be considered associated when one person controls one corporation and an unrelated person controlled the other corporation.

"In determining whether one corporation is associated with another corporation, the fact that they have entered into a partnership arrangement or have dealings with each other would not, and by itself, be significant.

"In general, it is our view that there is no provision in Bill 68 which would lead us to conclude that professional corporations incorporated thereunder would be treated any differently than other corporations with respect to association."

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on April 30, 1976:

<i>Guaranteed Fund</i>	\$12.535;
<i>Fixed Income Fund</i>	\$16.751;
<i>Common Stock Fund</i>	\$28.710.

Total assets (market value) of the plan were \$24,035,681.97.

The following portfolio purchases and sales occurred during the preceding month: bought, 700 shares Bell Canada, \$500,000 General Motors discount note, \$100,000 Barclays Canada

discount note, \$200,000 Canadian Acceptance Corp. note, \$500,000 Noranda Mines note, \$650,000 Royal Trust GIR, \$59,550 units Classified Fund Fixed Income, 45,114 units Classified Fund Conventional Mortgage. Sold, \$650,000 Royal Trust GIR, \$500,000 Bank of Nova Scotia discount note, \$100,000 Banque Canadienne Nationale note, \$200,000 Barclays Canada discount note.

For further information write to: CDA-sponsored Pension and Insurance Plans, 14 Madison Ave., Toronto, Ont. M5R 2S1.

Auxiliary training program for George Brown College

George Brown College of Applied Arts and Technology recently received a grant of \$121,330 from the Federal Health Resources Fund to assist with construction costs in its health training facilities. The provincial government matched this grant with an equal amount.

The grant will be used for renovating and equipping part of the facilities at George Brown to enable the college to institute a three-year program for training dental assistants, preventive dental assistants and dental hygienists. The renovation work will provide students with proper facilities equipped with x-ray, dental and other equipment at 31 student stations. It is anticipated that up to 144 students will be enrolled in the three-year program.

DEATHS

Johnston, Joseph Hawley. 65. St. Thomas. University of Toronto, 1936. 14-3-76. Survived by Eleanor (wife); Charles (son); Mrs. Joanne Jewell and Margaret (daughters).

McPhee, Donald Snider. 78. Vankleek Hill, Ont. Royal College of Dental Surgeons of Ontario, 1923. 23-4-76. Survived by Lillias (wife); Donald and Alastair (sons); Mrs. Lorraine Coffin (daughter).

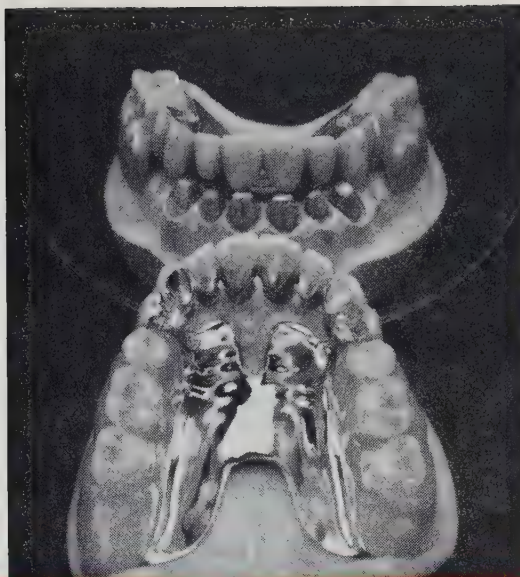
Milne, James Copland. 72. Marathon, Ont. University of Toronto, 1932.

Reichman, Preston William. 82. Cardston, Alberta. Northwestern University, 1917. 6-3-76.

Slade, Harry Arthur. 64. Toronto. University of Toronto, 1939. 22-4-76. Survived by Beverley (wife); Harry (son); and Amanda (daughter).

Stedman, Lloyd Reuben. 81. Gananoque. Royal College of Dental Surgeons of Ontario, 1916. 18-2-76.

Young, William Henry. 84. Kentville, N.S. Dalhousie University, 1922. 23-4-76. Survived by Dr. Harris Young (son), and Ardythe (daughter).



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MacKay Dental Lab.,
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Manitoba Dental Labs.
333 Kennedy St.

QUEBEC — FABREVILLE

Oralum Enrg.
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QUEBEC — MONTREAL

Dentarium Laboratories
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3726 Jean-Talon West

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QUEBEC — QUEBEC CITY

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386 Dorchester, Sud.



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222 * is a reliable analgesic — you and your patient can depend on it.

INDICATIONS: For relief of mild to moderate pain, fever and inflammation as in influenza, common cold, low back and neck pain, headache, trauma, following dental and surgical procedures.

DOSAGE: Adults — 1 or 2 tablets one to three times daily; Children's dosage, when recommended by a physician: 10 to 14 years, one tablet, one to three times daily; 5 to 10 years, one-half tablet, one to three times daily.

CONTRAINDICATIONS: Gastrointestinal ulceration and sensitivity to any of the components.

WARNINGS: Salicylates increase the effects of anticoagulants. Caution is necessary when salicylates and anticoagulants are prescribed concurrently. Also, salicylates may depress the concentration of prothrombin in the plasma. Large doses of salicylates may affect insulin requirements of diabetics. Salicylates may potentiate sulfonylurea hypoglycemic agents. Analgesic abuse (excessive and prolonged therapy) has been associated with nephropathy. TO AVOID

ACCIDENTAL POISONING ACETYSALICYLIC ACID PREPARATIONS MUST BE KEPT WELL OUT OF REACH OF CHILDREN.

PRECAUTIONS: Give with caution to patients with asthma, other allergic conditions, bleeding tendencies, or hypoprothrombinemia. Salicylates can produce changes in thyroid function tests.

Observe care in use of codeine, although tolerance and addiction are rare. Give codeine with caution to patients with severe respiratory depression. Its depressant effect may be enhanced by concurrent administration of sedatives and tranquilizers.

ADVERSE REACTIONS: Acetylsalicylic acid: *Gastrointestinal:* dyspepsia, heartburn, nausea, vomiting, diarrhea, gastrointestinal ulceration and bleeding. *Ear reactions:* tinnitus, hearing loss. *Hematologic:* anemia, leukopenia, thrombocytopenia, purpura. *Dermatologic and Hypersensitivity:* urticaria, angioedema, pruritus, various skin eruptions, asthma and anaphylaxis. *Miscellaneous:* mental confusion, drowsiness, sweating and thirst.

Codeine: Average or large doses may cause various gastrointestinal symptoms such as nausea, vomiting and constipation.

Caffeine: May cause nausea, nervousness, insomnia, headache, vomiting, palpitation, vertigo, muscle tremor, sensory disturbances, excessive diuresis in sensitive patients. Large doses may cause gastric ulceration.

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Jasper National Park offers a breathtaking variety of scenery with its crystal clear lakes, fed by glacial waters; its great waterfalls and underground rivers, and, above all, its mountains.

Plan a two-day riding or back pack trip to Maligne Lake or Tonquin Valley. Scuba dive in Edith Lake or plan a few days of fishing in one or more of the well stocked lakes. If golf is your game, plan a few days at Jasper Park Lodge where the fairways are first rate. Whatever your interest, you'll find what you want at Jasper National Park.

A word of warning — don't forget your camera!

FIXED PROSTHODONTICS AND OPERATIVE DENTISTRY

At no other time in the history of dentistry have practitioners been confronted by anything like the present multitude of new materials and techniques.

Delegates attending the Edmonton convention will therefore recognize the value of being guided through the wilderness of manufacturers' claims by a world-recognized authority on the subject of dental materials and restorative procedures. Dr. Gordon Christensen, clinical professor of dentistry at the University of Colorado, will address the convention on recent advances in fixed prosthodontics and operative dentistry. His presentation will cover: acid etching for restorations; splinting, veneering and replacing missing teeth; selection of a silver alloy for routine use; a comparison of methods and materials used for inter-occlusal records; a

comparison of impression materials and techniques; dental cements, semi-precious metals and new cavity preparations.

A 1960 graduate of the University of Southern California Dental School, Dr. Christensen also has a Master's degree from the University of Washington and a Ph.D in education and psychology from the University of Denver. He is a Diplomate of the American Board of Prosthodontics (Fixed) and a Fellow of both the American and International College of Dentists. He holds memberships in a number of scientific organizations in the dental field and is a member of the American Dental Association's Council on Dental Materials and Devices. A well known lecturer, Dr. Christensen is also the author of some 50 articles and a contributor to three text-books.

Esthetics of fixed partial dentures

The increasing acceptance of porcelain to gold restorations for durability and esthetic value places an added responsibility on the dentist. The durability and strength are products of the material, the esthetics must be built in by the operator.

This whole area will come under examination during the presentation on "Esthetics and chairside characterization of fixed partial dentures" to be given by Herbert Ptack of Montreal. His presentation will correlate the areas of proper tooth preparation, contouring of metal and porcelain, and chairside staining. The staining technique will be demonstrated with slides, enabling the practitioner to complete this work in his own office.

A dental graduate of McGill University, Dr. Ptack took postgraduate studies in fixed prosthodontics at the University of Illinois. At present he is an assistant professor at the McGill Faculty of Dentistry. Dr. Ptack has lectured on his specialty throughout Canada and the United States.

International representation

The Canadian Dental Association will play host to visitors from around the world during its 1976 National Convention in Edmonton. Reservations have already been received from more than 100 dentists from Switzerland, as well as from delegates from the United States, New Zealand and England.

LE DOCTEUR W. G. McINTOSH, DIRECTEUR EXECUTIF DE L'ADC, DONNE SA DEMISSION

Le docteur William G. McIntosh a officiellement démissionné le 1er juin 1976 du poste de directeur exécutif de l'Association dentaire canadienne. A ce titre, le Docteur W. G. McIntosh représentait la médecine dentaire au Canada depuis plus de onze ans, aussi bien à échelle nationale qu'internationale.

Né à Hanley, Saskatchewan, Dr McIntosh obtint son diplôme à la Faculté dentaire de l'Université de Toronto en 1937 et un diplôme de M.Sc. en médecine dentaire à la même université en 1957. Il a exercé sa profession à Trenton, Oshawa et Toronto et a servi à titre de major dans le Corps dentaire des Forces canadiennes de 1942 à 1946. Après son service militaire, il est retourné à Toronto pour y exercer sa profession jusqu'en 1964, se spécialisant dans le domaine de parodontologie. Au cours de cette

période, le Dr McIntosh a enseigné à l'Université de Toronto à titre de professeur agrégé (Associate Professor) en parodontologie et a travaillé à titre de consultant au Hospital for Sick Children et au Sunnybrook Hospital.

Au cours des années, Dr McIntosh a fait partie de nombreux comités de l'Association dentaire canadienne. Il a siégé au Conseil d'administration de l'association de 1957 à 1961 et a été élu président de l'ADC pour le mandat 1959-1960. En septembre 1964, il a été nommé secrétaire de l'Association, et s'est chargé de ce poste à temps plein en Janvier 1965.

Dr McIntosh était président du Comité de recherches de l'American College of Dentists, de 1957 à 1958. Il est membre (fellow) du Collège royal des dentistes du Canada, de l'American College et du Collège international des dentistes. Il est également membre des

Académies canadienne et américaine de parodontologie et a servi à titre de président de l'Académie canadienne, de 1958 à 1959.

Dr McIntosh est actuellement un vice-président et trésorier national pour le Canada de la Fédération dentaire internationale et il a récemment été nommé membre de la Commission consultative sur la santé dentaire, par le Directeur général de l'Organisation mondiale de la santé.

Au cours de sa carrière, le Dr McIntosh s'est vu accorder de nombreux titres honorifiques en marques de reconnaissance pour les services qu'il a rendus à sa profession. Il est membre honoraire des Associations dentaires américaines et britanniques et à titre honorifique, docteur en droit de l'Université de la Saskatchewan.

ERRATUM

Le Journal de l'ADC a été invité à bien vouloir rectifier un article intitulé "L'ACIAD inaugure un programme indépendant d'études pour les assistantes dentaires du Canada", qui a paru à la page 114 du Journal de mars. Cet article signalait, par erreur que les programmes indépendants d'études pour les assistantes dentaires projetés par l'Association canadienne des infirmières et assistantes dentaires étaient accrédités par l'Association dentaire canadienne. En fait ces programmes ne sont pas accrédités par l'ADC.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 30 avril 1976:

<i>Fonds avec garantie</i>	\$12.535;
<i>Fonds à revenu fixe</i>	\$16.751;
<i>Fonds d'actions ordinaires</i>	\$28.710.

L'avoir total (valeur marchande) du régime se montait à \$24,035,681.97.

Au cours du mois précédent, les transactions ont été les suivantes:

achat, 700 shares Bell Canada, \$500,000 General Motors discount

note, \$100,000 Barclays Canada discount note, \$200,000 Canadian Acceptance Corp. note, \$500,000 Noranda Mines note, \$650,000 Royal Trust GIR, 59,550 units Classified Fund Fixed Income, 45,114 units Classified Fund Conventional Mortgage. Vente, \$650,000 Royal Trust GIR, \$500,000 Bank of Nova Scotia discount note, \$100,000 Banque Canadienne Nationale note, \$200,000 Barclays Canada discount note.

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CONFERENCE GRIEVE MEMORIAL

Depuis 25 ans déjà, l'une des réalisations les plus remarquables au chapitre de l'enseignement de l'art dentaire au Canada, a été la présentation annuelle du programme de conférences Grieve Memorial, conçu et organisé sous l'égide de l'Association canadienne des orthodontistes en hommage à l'un de ses illustres membres, le Dr George W. Grieve.

L'un des pionniers canadiens dans le domaine de l'orthodontie, Dr. Grieve a exercé à Toronto de 1900 à 1949. Sommité reconnue de sa spécialité, le Dr. Grieve était également l'un des premiers à préconiser l'extraction des dents pour faciliter le traitement orthodontique. Il a continué à préconiser cette attitude hérétique malgré une forte opposition et a finalement été récompensé par l'acceptation totale de ce concept par ses collègues.

Après son décès, ses confrères de la Société des orthodontistes ont organisé la présentation d'une conférence annuelle. La première fut prononcée en 1949 par le Dr. Gerald Franklin de Montréal et présentée en conjonction avec le Congrès annuel de l'ADC. Depuis, un grand nombre des remarquables conférenciers du domaine de l'orthodontie ont eu l'honneur de présenter leurs exposés à cette conférence.

La présentation de 1976 sera faite par le Dr. Richard A. Reidel, chef du Département et professeur d'orthodontie à l'University of Washington à Seattle. La communication porte un titre approprié: "Pourquoi extraire quand il s'agit de traitement orthodontique?" (Why extraction in relation to orthodontic treatment). Ce thème s'adresse aux dentistes généralistes aussi bien qu'aux spécialistes. Le Dr. Reidel estime que les patients dentaires d'aujourd'hui, tout à fait au courant des derniers développements, tiennent à ce que leurs dentistes puissent les renseigner sur les divers traitements, répondre à leurs questions et les orienter de façon avisée vers les spécialistes qui conviennent, même s'ils ne peuvent pas effectuer eux-mêmes le traitement nécessaire.

Le Dr. Reidel est une autorité internationale reconnue du domaine de l'orthodontie, et exerce à titre de chercheur, de conférencier, de professeur et d'auteur dans cette spécialité depuis 1948. Il a donné des conférences et des cours post universitaires dans tout le Canada, aux États-Unis, en Amérique du sud et en Europe. Et il continue à collaborer abondamment à la rédaction de manuels d'enseignement ainsi qu'aux périodiques professionnels.

L'esthétique des prothèses partielles fixes

L'acceptation croissante de restaurations en porcelaine sur or, durables et esthétiques, crée une responsabilité de plus pour le dentiste. Les qualités de durabilité et de solidité dépendent des matériaux, alors que celles de l'esthétique relèvent du praticien.

L'ensemble de cette question sera mise à l'étude au cours d'une présentation intitulée "Esthetics and Chairside Characterization of Fixed Partial Dentures" (L'esthétique et la caractérisation déterminée sur place pour les prothèses partielles fixes), faite par le Dr. Herbert Ptack de Montréal. Sa communication établit une corrélation entre la préparation correcte de la dent, les contours de métal et de porcelaine, et la coloration faite également sur place. La technique de coloration sera démontrée à l'aide de diapositives, et cette méthode permettra au praticien de faire l'ensemble du travail dans son propre cabinet.

Diplômé de la faculté dentaire de l'Université McGill, le Dr. Ptack a fait ses études post-universitaires dans le domaine des prothèses fixes à l'University of Illinois. Il est actuellement professeur adjoint à la faculté dentaire de l'Université McGill. Le Dr. Ptack a donné des cours dans sa spécialité dans tout le Canada et aux États-Unis.

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mes ou un gros noeud à un chapeau de paille, sortez du fond de votre tiroir une vieille paire de gants et ça y est — vous voilà prête!

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Tirage parmi les pre-inscriptions

Inscrivez-vous aujourd'hui même au Congrès national de l'Association dentaire canadienne qui aura lieu du 12 au 15 septembre à Edmonton et gagnez deux billets d'avion qui vous permettront de vous rendre au 64ème Congrès dentaire mondial à Athènes.

Pour être admissible à ce tirage, il faut que votre inscription soit reçue avant le 31 juillet 1976.

Ne tardez pas! Remplissez et envoyez dès aujourd'hui la formule d'inscription que vous trouverez à l'arrière de ce numéro.

Comparison of the effects of floctafenine and codeine on postsurgical pain

I. Daigle, DDS
R. Elie, MD, PhD
J. Gareau, MD
G. Chesnay, DDS, FRCD(C)
Montreal

Floctafenine, a new non-narcotic hydroxyquinidine derivative, was at least as effective as codeine in mitigating postoperative pain from minor oral surgery.

La floctafenine, nouveau produit non narcotique dérivé de l'hydroxyquinidine, s'est révélée au moins aussi efficace que la codéine pour atténuer les douleurs post-opératoires provenant d'interventions chirurgicales buccales mineures.

Minor tranquillizers and analgesics are widely employed in dental practice for the prevention or treatment of post-operative dental pain. Acetylsalicylic acid (ASA) and dextropropoxyphene are frequently used,^{1,2} although both are associated with serious side effects.^{3,4} Gastric upset, gastro-intestinal bleeding and exacerbation of ulcers are well-known effects of salicylates. Moreover, the possible depressant effects and psychological dependence induced by propoxyphene can be added to the toxic effects of salicylates with which it is often associated.

Because of the undesirable effects of this combination of drugs, codeine is now generally used in dentistry for the treatment of moderate to severe pain, in spite of the fact that the drug may occasionally produce respiratory depression and cardiac palpitations.

At present, therefore, there are no effective analgesics for moderate to severe pain which are free from harmful side effects. For that reason, there is particular interest when a

new non-narcotic analgesic compound is introduced, which appears to be well tolerated by humans.

One such compound is floctafenine (Idarac) which belongs to the group of phenol aminoquinoline (Fig 1).⁵ Preliminary animal studies^{6,7} revealed that the drug produces no significant effects on the cardiovascular, gastro-intestinal or renal systems. Moreover, it apparently does not cross the blood-brain barrier and thus induces no central depressant effect. In addition to its promising toxicological behaviour, floctafenine is pharmacologically seven times more active than ASA.

With these facts already established, we undertook a comparative clinical study of this new compound in order to evaluate its usefulness in painful dental conditions. Its analgesic and toxic effects were compared to the standard drug, codeine, in a double-blind crossover investigation.

Material and methods

The sample population was composed of ambulatory patients under treatment in an oral surgery clinic for minor conditions such as an apicoectomy or preprosthetic surgery of the soft tissues. Subjects who were less than 14 years of age or those who were allergic to codeine or had undergone a major surgical procedure were excluded from the study. After being informed of the nature of the study and of the possible effects of the drugs, a written consent was obtained from each subject.

Floctafenine and codeine were employed as 400 mg and 30 mg doses, respectively, using tablets which were identical as to shape, colour and taste. The drugs were given to the patients by random distribution so that half the patients received codeine first and floctafenine second and the other half received the drugs in the reverse order. With two

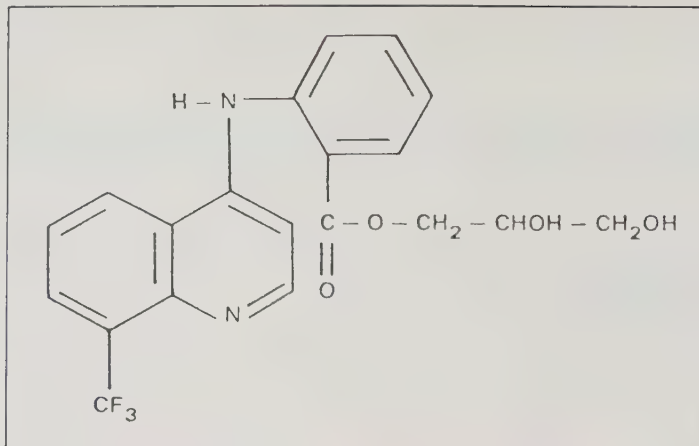


Fig 1 Floctafenine is dihydroxypropyl N- (8 trifluoromethyl, 4 quinolyl) anthranilate.

groups of patients thus formed, the experimental plan followed a latin square design for three variables: groups, drugs and time sequences.

The assessment made in the study included: intensity of postoperative pain, degree of relief afforded by each test drug, and the duration of analgesic effect. The first two variables were subjectively evaluated by each patient according to a 0 to 9 rating system. Pain was rated from "extreme" (9) to "nil" (0), while degree of relief was treated in reverse from "nil" (0) to "complete" (9). This system enabled us to correlate the analgesic effect obtained with the degree of pain present initially.

The experimental procedure was constant for each patient in the study. Following the surgical procedure, the patients received two bottles, numbered "1" and "2," each containing two tablets. At the same time, they were also given printed questionnaires. The patients were to take the tablets from bottle "1" first for pain and to record the time, the intensity of pain and the degree of relief obtained. If pain persisted or reappeared, the patients could then take the tablets from the second bottle and record the pertinent information. A minimum of one hour was required to elapse before the patient was permitted to take tablets from bottle "2" and both tablets were to be taken at each time interval. The questionnaires were returned to the clinic on the following day.

At the end of the study, the code was broken and the results submitted to a statistical analysis. The degree and duration of relief were analyzed by covariance to determine the possible relationship between the intensity of pain and the analgesic effect of the drug. This analysis was performed separately for each treatment. The 5 per cent probability level was used as the accepted level of significance for differences in the results.

A latin square analysis could not be performed since 25 per cent of the patients did not require the second medication. This was probably due to a residual effect of the first medication.

Results

Out of a total of 100 patients, only 83 (33 men and 50 women) could be used for the statistical analysis. Of these

Characteristics of the population studied

Table 1

Criteria	Group 1	Group 2
Male:female ratio		
Mean age	31.3±4.44	30.6±3.98
Deviations	18%	16%

Comparison of the analgesic effect of floctafenine and codeine

Table 2

Criteria	Floctafenine (N = 42)	Codeine (N = 41)	F	F ¹
Mean score for pain	4.91	4.12	3.70*	
Mean score for relief	6.07	4.41	6.33†	
Ratio of pain to relief (R)	0.08	0.04		
Mean relief score (adjusted)	6.08	4.40		6.12†
% complete relief ± S.D.	24±14.5	29±7.0		
Mean duration of relief (min.)	276	247		

*Difference significant at P<0.05

†Difference significant at P<0.01

Comparison of the analgesic effect of floctafenine and codeine in recurring pain*

Table 3

Criteria	Floctafenine (N=31)	Codeine (=30)	F	F ¹
Mean score for pain	4.52	4.57	0.01	
Mean score for relief	6.90	4.87	11.58†	
Ratio of pain to relief (R)	0.04	0.03		
Mean relief score (adjusted)	6.90	4.87		11.58§

*Pain which recurred following the ingestion of the first test medication

†Difference significant at P<0.05

§Difference significant at P<0.01

patients, 41 had used codeine first and 43 floctafenine first. The mean age of the population studied was 31 years (range: 27-35 years). There were no significant age differences between the two groups (Table 1).

The intensity of pain varied significantly ($F=3.7$; $P<0.05$) between the two groups of patients before any analgesic was taken. The mean score for pain was higher in the floctafenine group (4.91) than in the codeine group (4.12) as seen in Table 2.

However, the intensity of pain was not linearly related to the response to treatment. The estimated correlation coefficient (R) was 0.04 for the codeine group and 0.08 for the floctafenine group. Thus, the analysis of variance as a function of pain does not affect the significance of the therapeutic response.

Compared to codeine, floctafenine produced a greater degree of pain relief (approximately 38 per cent). This dif-

ference was significant by both analysis of variance and covariance ($F = 6.33$; $F' = 6.12$; $P < 0.01$). On the other hand, no significant difference was found between the two drugs with respect to the duration of the analgesic effect (Table 2). However, a slight difference might exist between the two drugs since more patients achieved permanent relief with floctafenine (12) as compared with codeine (10), and since the relief was of longer duration with floctafenine (276 min.) than with codeine (247 mins.) for these patients who required a second medication.

At the end of the analgesic period — four to five hours after taking the first medication — there was no significant difference in the level of pain between the two experimental groups, the scores being 4.52 and 4.57 for codeine and floctafenine, respectively (Table 3). As before, however, floctafenine yielded a greater degree of relief than did codeine ($F = 11.58$; $F' = 11.38$; $P < 0.01$). This difference in effect was in the order of 42 per cent in favour of floctafenine.

Discussion

This comparative study of floctafenine with a reference medication in adult patients indicates that floctafenine may be at least as effective as codeine for postoperative dental analgesia. Since there was no placebo group in the study, we cannot extrapolate to the general population and confirm the precise analgesic activity of the drug. Nevertheless, for practical and therapeutic purposes, the results suggest that the new drug could be advantageous in minor dental procedures. Moreover, previous clinical experience⁸ has already demonstrated that floctafenine is statistically superior to placebo, albeit in chronic painful conditions, and other published studies^{9,10} provide additional evidence of the analgesic effect of floctafenine when the latter was compared to dehydrocodeine in postoperative pain.

As in these previous studies, floctafenine was well tolerated by our patients. No undesirable effects were reported; however, it should perhaps be pointed out that the questionnaire was not specific in asking about side effects. It is possible, therefore, that the patients did not report certain minor reactions caused by the medication. On the other hand, it is hardly likely that a patient would omit mentioning significant adverse effects while filling out his questionnaire. Furthermore, floctafenine, being non-narcotic, would be our preferred agent compared to codeine, which can be habit-forming.

The results of this study warrant further comparisons between floctafenine and placebo, particularly with regard to dose-response and possible side effects. Also, additional studies should be undertaken where clinical indications require long-term therapy.

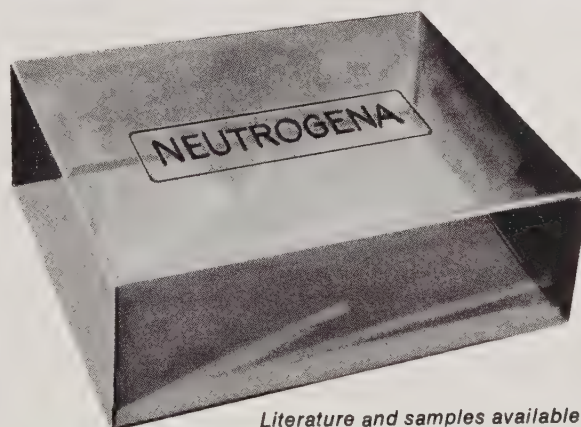
Dr. Daigle is with the Hôpital St-Luc, Montreal; Dr. Elie is with the INR Santé, Hôpital St-Jean de Dieu, Montreal; Dr. Gareau is medical director of Roussel (Canada) Ltd; and Dr. Chesnay is with the Hôpital Ste-Justine, Montreal.

Address reprint requests to Dr. G. Chesnay, Suite 1533, 2020 rue Université, Montréal H3A 2A5.

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Temporomandibular pain-dysfunction: a suggested classification and treatment

J. E. Speck, DDS, FRCD

G. A. Zarb, BchD (Malta), DDS, MS (Mich), MS (Ohio), FRCD(C)
Toronto

Temporomandibular joint pain-dysfunction is a common clinical problem. It is often a source of frustration to the clinician.

Costen's original temporomandibular joint syndrome¹ was based upon overclosure as the prime aetiological agent. Occlusal interferences, muscle inco-ordination and emotional stress have more recently been cited as primary causative factors.²⁻⁹

The increasing number of patients being referred to the Department of Periodontics at the Faculty of Dentistry, University of Toronto, for treatment of pain in and around the temporomandibular joint, restricted opening, and clicking, has prompted the author to classify temporomandibular joint problems into four main areas. Some patients clearly fall entirely within one category; others, while fitting primarily into one classification, also have contributing factors from one or more of the other groups.

The suggested four main divisions of temporomandibular pain-dysfunction are (1) macrotraumas (sprains), (2) microtraumas (strains), (3) arthritis, and (4) stress syndrome (muscle spasm with an emotional background).

Classification 1: Macrotrauma (sprain)

Aetiology — This type of damage is precipitated by any sudden abnormal pressure which stretches or tears the joint structures. Causes of this type of injury include blows to the jaw, as in contact sports or accidents, extraction of lower molars where heavy pressure combined with wide opening subject the joint to sprain, the use of a mouth prop during intubation for a general anaesthetic or excessive opening during tonsil operations, and whiplash with secondary whiplash to the mandible (gravity causes the mandible to lag slightly behind the rearward arcing skull and then in turn it is snapped backward by its attachment to the skull).

Injury to a previously strained (see Classification 2), chronically clicking, hypermobile joint may also produce a spontaneous sprain subsequent to a sudden wide opening of the hypermobile joint. This can occur during laughing or yawning or when biting into a large, thick, resistant mass which subjects the joint to excessive pressure while it is in a position of mechanical disadvantage, or when the jaw is accidentally opened wider than usual, followed by momentary inability in closing; this difficulty is then resolved with a resounding click. All of these movements can produce an acute sprain in patients with a pre-existing chronically strained joint.

A new dental restoration, particularly one of gold as in fixed bridgework, which deflects the mandible laterally in its path of closure, can produce a sprain within 48 hours.

There may well be other causes, but the foregoing are representative of the type of injury that can produce a sprain and are based upon actual case histories.

Signs and symptoms — Macrotrauma causes two main symptoms: pain and inability to open the mouth. Clicking may also be present. One symptom may predominate over the others. Occasionally, pain or the victim's response to the pain appears to be excruciating. The patient's opening ability (interincisal distance at wide opening) should be measured and recorded for later comparison. The pain may be located directly over the joint or may be palpable as muscle spasm in any of the muscles of mastication. Less frequently, muscle spasm can be palpated in the sternocleidomastoid and suprahyoid muscles. When the patient tries to open, the lower midline drops sharply towards the painful side. The patient may also complain that the teeth do not mesh properly. It is important to rule out fractures in traumatic injuries to the mandible.

The pain and restricted jaw movement stem from actual joint damage (stretching or tearing of the temporomandibular

Classification and treatment of temporomandibular pain dysfunction

Table 1

	Classification 1 Acute trauma (macrotrauma: sprain)	Classification 2 Chronic trauma (microtrauma: strain)	Classification 3 Arthritis (acute or chronic traumatic arthritis, osteoarthritis, rheumatoid arthritis, infectious arthritis)	Classification 4 Stress syndrome
Aetiology	Sudden heavy pressure or blow Wide opening and heavy pressure as in lower molar extraction Whiplash Injury to a previously strained joint, as in a sudden wide opening, yawning, laughing New hard dental restoration Mouth props	Multiple minor traumas over prolonged period, as in centric or balancing occlusal interferences No definite centric occlusion Zig zag opening and closing paths Parafunction: clenching, grinding General loose ligamented body type Improperly healed sprain	Acute trauma (sprain) Chronic trauma (strain) Roughening of joint surfaces Ageing Unknown cause: rheumatoid, females: males 3:1. Eighty per cent cases age 20-50 Infection: staphylococcus, streptococcus, gonococcus	Primary Secondary to sprain, strain or arthritis Life events Personality Anxiety, frustration, anger Clenching, grinding Occlusal interferences
Signs and symptoms	Pain Restricted opening Clicking Muscle spasm Teeth may not meet on one side (rule out fracture)	Clicking Hypermobility and little or no pain unless accompanied by muscle spasm Hypermobility and pain if accompanied by muscle spasm	Painful, sometimes noisy function Crepitus Restricted activity Muscle spasm Fluctuating occlusion Infections: pyrexia, lymphadenopathy, leucocytosis, tenderness, redness	Pain mostly in muscles Restricted opening Clicking Headache Anxiety, hostility
Causes of signs and symptoms	Stretching or tearing of capsule Tearing of lateral pterygoid insertion into meniscus Muscle splinting to ease painful joint Muscle spasm — reflex from stretch Oedema, inflammation	Chronic stretching of capsule Tearing of meniscus from its attachment to lateral pterygoid Loose meniscus jammed in wide opening or over closure Easily become acute	Inflammation, oedema Degeneration New bone formation Muscle splinting	Muscle spasm
Treatment	First 24 hours: cold Later: heat Medication: analgesics, muscle relaxants, anti-inflammatories Very gentle assistive stretch exercises, resistive close exercises Soft diet Bite plate Most heal spontaneously unless complicated by previously tolerated occlusal discrepancies Occlusal adjustment after acute phase subsides	Avoid wide opening, laughing, yawning Avoid vigorous chewing, especially with large mouthfuls Bite plate for pain or to break habits Occlusal adjustment if no pain Exercises: retarded opening, straight opening and closing, resistive opening Heat and medication for muscle spasm	Bite plate Heat Medication: analgesics, anti-inflammatories, muscle relaxants, antibiotics for specific infections. Occlusal adjustment	Empathy with patient Medication: analgesics, muscle relaxants, local anaesthetics (injected or sprayed: ethyl chloride) Biteplate Exercises Heat Occlusal adjustment Relaxation therapy: hypnosis Psychiatric counselling

lar capsule), damage to that portion of the lateral pterygoid muscle which inserts into the meniscus, muscle splinting (contracture) to minimize movement of the sore joint, muscle spasm (reflex contracture of a muscle which has been suddenly stretched), or oedema and inflammation in and around the joint. One or more of these mechanisms should account for the patient's signs and symptoms.

Treatment — Radiographs of the mandible and joint may be desirable to rule out fracture.

If the patient is seen immediately after occurrence of the trauma, cold compresses (ice bag) should be applied for up to the first 24 hours to minimize inflammation and oedema. After 24 hours, moist heat applied intermittently for periods of 10 minutes will improve circulation in the area for better repair and also relax the musculature.

Drugs may be used for analgesia, muscle relaxation and to combat inflammation. Analgesics like meperidine 50 mg q4–6h prn or codeine phosphate 30 mg q4–6h prn are effective. Enteric-coated acetylsalicylic acid 10 mg, 2 tablets q6h, relieves pain and some inflammation as well. Muscle relaxants, such as diazepam 2 mg qid (or stronger) or chlor-diazepoxide 5 mg qid relax the muscle spasm and the patient generally. Anti-inflammatories such as phenylbutazone 100 mg qid, indomethacin 25 mg qid, or ibuprofen 200 mg, 2 tablets q8h, relieve any acute inflammation. Use of phenylbutazone or indomethacin for more than four or five days is rarely necessary in acute sprains and should not be undertaken without awareness of the undesirable side effects of these drugs. They should not be prescribed for anyone with a history of peptic ulcer.

Very gentle stretching exercises may be prescribed to increase the mandibular opening. The patient should hang the first and second fingers of one hand on the lower incisors and slowly and gently open and close while getting slight resistance on the close and assistance on the opening.

A soft diet is desirable because these patients cannot chew vigorously. It also eliminates the frustration they experience when they cannot handle tougher foods.

A bite plate may be constructed to disengage the teeth if the jaw can be opened sufficiently to permit the taking of an impression. Otherwise, the patient is encouraged to wear two dental cotton rolls placed occlusally, one on each side, on the mandibular posterior teeth during waking hours, except when eating. Most patients get a sense of relief within a few hours of wearing cotton rolls.

Most sprains heal spontaneously in six weeks or less, unless complicated by pre-existing centric interferences, balancing interferences or clenching habits which were unknowingly tolerated prior to the sprain. Occlusal adjustment by grinding may then be necessary to minimize these interferences. A bite plate may have to be worn for some days or weeks prior to occlusal adjustment.

Occlusal adjustment is avoided during the acute phase because oedema and muscle spasm make accurate assessment of the patient's occlusion very difficult or impossible.

Classification 2: Microtrauma (strain)

Aetiology — This type of damage is due to persistent multiple minor traumas which stretch the joint capsule and weaken or detach the lateral pterygoid insertion into the meniscus. These repeated traumas usually result from lateral deflection of the mandible, balancing tooth interferences or lack of a definite centric occlusion.

Tooth or restoration interferences may deflect the jaw laterally as it moves from the rest position to the closed position.

Balancing interferences on the non-working side classically produce contact between the lingual surface of a buccal cusp of a lower molar and the lingual surface of the lingual cusp of an upper molar.

Many patients whose centric occlusion differs from their centric relation get along comfortably all of their lives. However, some patients do not have even a definite centric occlusion; their mandible closes until the teeth touch and then drops and moves laterally seeking various positions of comfort. The jaw almost quivers as it seeks a place of comfort against which to close. This may happen following inadequate orthodontic treatment or full mouth reconstruction. The resultant erratic mandibular movements cause masticatory muscle spasm and inco-ordination and subsequent chronic stretching of the capsule.

Other causes of temporomandibular joint microtrauma are zig zag opening and closure of the mandible, parafunctional movements, loose ligaments or an incompletely healed preceding sprain (Classification 1).

Zig zag opening and closing patterns jolt and stretch the capsule.

Clenching and grinding (parafunction) produce chronic traumas in the joint structure.

Some patients have generalized loose ligaments. These permit many joints in their bodies to perform through a wider than normal range of function. In the temporomandibular joint, this excessive range of movement produces a chronic strain.

Strain may also result from a previous sprain which did not heal completely. Such sprains become chronic strains by one or more of the factors previously described. The factors are presumed to have been within the patient's tolerance range prior to the macrotrauma.

Signs and symptoms — Strain results in clicking within the joint, hypermobility (or hypomobility if complicated by muscle spasm), chronic muscular discomfort about the joint and muscles of mastication, and headache resulting from facial or scalp muscle tension. If there is no pain, the midline of the lower jaw will move away from the affected side as the patient opens, due to the increased "play" in the capsule. If there is pain, then it is customary for the lower midline to move toward the affected side on opening.

Clicking is probably due to movement of the meniscus, which is no longer tightly bound to the head of the condyle and has lost part or all of its lateral pterygoid insertion. As

the patient opens, the meniscus, instead of being brought forward with the condylar head, lags behind until the condylar head begins to ride up on the anterior or lateral thickened disc periphery. This produces the symptoms which patients interpret as "locking." There is a momentary jamming of the joint until the slippery meniscus, like a frozen pea being squeezed between thumb and finger, literally pops or clicks back onto the surface of the condyle head; or it may pop (click) distally as the condyle head falls off the anterior edge of the disc. In the latter case, there may well be a second click as the patient closes and the disc pops back onto the condyle head. These clicks can be unilateral or bilateral and tend to produce zig zag opening and closing paths as the patient subconsciously tries to minimize the clicks. Conversely, a zig zag opening and closing path of unexplained origin may contribute to chronic strain of the joint.

Frequently, if one joint clicks, the patient will develop erratic opening and closing patterns in an attempt to avoid the click. This will often cause the other joint to become chronically strained and eventually it may begin to click too.

Most clicks are at the wide open position. Sometimes, however, the click occurs just as the patient begins to open or just before the teeth touch in closing. It is my clinical impression that this occurs in overclosure problems where the condyle head, being farther back than normal, jams the posterior rim of the meniscus and then causes it to snap into position.

The other clinical signs and symptoms are related to the stretched capsule and wider range of motion of the joint. Where occlusal interferences have produced chronic strain in a joint, the resulting muscle spasm may cause pain or headache or a sense of facial strain. Muscle spasm may also cause hypomobility. This type of problem may readily progress to an acute dysfunction.

Treatment — Since a joint with a chronic strain can usually open wider than normal, it has more potential to progress to a sprain from trauma which might be tolerated by other joints with less play. The patient should therefore avoid wide opening when laughing or yawning. He should avoid heavy chewing, especially tough fibrous foods and large mouthfuls. His mouth should be spared vigorous manipulation or opening or heavy pressures as in the removal of lower molars.

If there is pain, an occlusal bite plate should be inserted to eliminate tooth interferences. The occlusion can be accurately assessed after the pain subsides.

Occlusal adjustment by grinding can begin at once if centric or balancing contacts can be demonstrated and pain is not a major symptom.

Most patients' joints only click when they protrude as they open. Exercises described by Schwartz and Chayes⁴ and by Shore,¹⁰ where the patient learns to open slowly and progressively wider while holding the chin point back, aid in minimizing the clicking. Other exercises by the same

authors to retrain muscle groups are described in their texts.^{4,11}

Patients who open in zig zag fashion should be given a mirror and trained to open in a perfectly straight, vertical path. They should practise at least twice a day (morning and evening) for 5–10 minutes each time. Substantial improvements can often be achieved by exercises alone.

Where muscle spasm exists, exercises may be supplemented by application of heat and medication.

A bite plate may diminish muscle spasm and facilitate occlusal adjustment by grinding, or minimize damage from nocturnal or diurnal clenching or bruxing.

Classification 3: Arthritis

Since arthritis is any inflammation in a joint, it may be secondary to a sprain (acute traumatic arthritis) or to a strain (chronic traumatic arthritis). Discussion in this article, however, is concerned with the more classic forms of the disease: rheumatoid arthritis, osteoarthritis and infectious arthritis.

Aetiology — The cause of rheumatoid arthritis is still obscure. It can affect the temporomandibular joint. Women are affected three times as frequently as men. The author treated one young lady in her twenties, as a case of suspected rheumatoid arthritis. Her initial laboratory tests were negative. When she became pregnant, her joint signs and symptoms disappeared, only to return again after termination of the pregnancy. Subsequent medical investigation by a rheumatologist confirmed a diagnosis of rheumatoid arthritis.

Osteoarthritis can also affect the temporomandibular joint. It is more common in middle and later life. The joint surfaces roughen and osteophytes may be seen radiographically. The shape of the condylar head and fossa can be altered markedly.

Infectious arthritis is an infection within the joint capsule. It may arise by direct extension from a neighbouring site of infection, such as mastoid air cells, or may be of haematogenous origin. Causative organisms include staphylococcus, streptococcus and gonococcus.

Signs and symptoms — The chief signs and symptoms of rheumatoid and osteoarthritis are painful and sometimes noisy temporomandibular joint function with subsequent muscle spasm and restricted opening and chewing movements. The noise from the joint is usually a crepitus rather than a click.

In infectious arthritis, pain and restricted movement are complemented by pain and redness over the joint, lymphadenopathy and temperature elevation.

In the three forms of arthritis, the patient's occlusion may vary from day to day as various degrees of oedema alter the position of the condyle head.

Signs and symptoms are due to inflammation of the joint, degeneration of the joint surfaces and muscle splinting.

Treatment — Many of these patients can be helped by making things as favourable as possible for the joint from a functional standpoint. This includes (1) construction of a bite plate to eliminate tooth interferences and assist muscular relaxation; (2) intermittent application of heat for 10 minute periods at least twice a day; (3) medication (analgesics, anti-inflammatories, muscle relaxants, antibiotics [for specific infection]) at the discretion of the clinician responsible for the patient's care; and (4) as the pain diminishes, occlusal adjustment by grinding.

Frequently patients report marked improvement if not total cessation of their symptoms. Toller¹² indicates that over a one to three year period, most patients' joint symptoms lessen significantly.

Classification 4: Muscle spasm stress syndrome

Aetiology — This is a very common and interesting problem related to the temporomandibular joint musculature in which the main predisposition is the patient's reaction to stress. It may be a primary problem or secondary to sprain, strain or arthritis. It appears to be much more common in females than in males.

Since the mouth and jaws are strongly linked with the expression of emotion, it is not surprising that many temporomandibular joint problems have a strong emotional overlay. Clinical impression suggests that this syndrome accounts for a growing proportion of patients with temporomandibular joint pain-dysfunction.

The main cause seems to lie in the patient's personality and response to life events. Some patients may be hostile and withdrawn, others may be anxious. Many have a definite sense of frustration and I consider this to be the single most important contributing emotion. Some patients use their temporomandibular joint syndrome as a crutch for sympathy and attention or as an excuse for poor performance.

The difficult part is explaining this to the patient without estranging him or losing his confidence. He has a physical symptom which, unlike an ulcer or colitis, has not as yet been widely appreciated or socially approved as a genuine expression of emotion. Many patients will resent or deny such an association, especially at an initial visit.

The clinician must acquire a detailed history in order to draw out something from his patient's life style, life events, and personality. Frequent victims are (1) students with concerns over their academic status, their relationship to boy or girl friends or their relationship with their parents; (2) young single persons with concerns over their jobs (too demanding, not enough money, don't like people at work, not demanding enough) or their marital status; or (3) young parents (especially mothers) who are worn out emotionally by their children, in-laws, financial concerns, and so forth.

The history is best obtained if the clinician can gain the patient's confidence by his empathetic attitude and by al-

lowing sufficient appointment time that the patient does not feel rushed. A major difficulty is the amount of time required in the treatment of temporomandibular joint syndromes.

In addition to major emotional inputs, there can be other, physical contributing factors such as centric prematurities with lateral deflection of the mandible, balancing interferences, clenching or bruxing or other habits. With a different personality, such a patient might tolerate these physical interferences but because of the emotional stress, the pain-dysfunction syndrome supervenes.

Signs and symptoms — The chief complaints are usually pain in various masticatory or related muscle groups, difficulty in opening, sometimes clicking and headaches. Low back pain and pain through the neck and shoulders are also quite common. Sometimes the pain about the temporomandibular joint is labelled as "excruciating." One patient complained that her pain was so bad that she could not walk because each step jarred her jaw. A bite plate and medication reduced her discomfort, but, following a trip back to England to visit her parents, her pain disappeared totally.

These problems arise almost exclusively from muscle spasms. These spasms can be palpated as sore spots in the muscle. A very frequent offender and most difficult to relieve is spasm in the lateral pterygoid. The spasm produces pain (probably from ischaemia) and also causes restricted jaw movement. Low back pain and neck and shoulder pain are common adjunctive symptoms, especially in secretaries or typists. Interestingly, these latter pains also seem due to muscle spasm but are usually much easier to eliminate.

Treatment — Treatment for this group of patients is less predictable than for the other three groups. Confidence in the clinician's ability to help is of paramount importance, and some of this confidence will come from the empathy and rapport which the clinician can develop with his patient.

In the early stages analgesics, muscle relaxants, and application of heat are desirable.

A bite plate may be constructed to help relieve muscle spasm.

Exercises, as suggested by Schwartz and Chayes⁴ or Shore,¹⁰ are advisable.

Occlusal adjustment by grinding should be carried out as the muscle spasm decreases with wearing of the bite plate but only if centric or balancing interferences can be demonstrated.

Relaxation therapy, using the techniques of Jacobson¹³ or Fink,¹⁴ can be employed to teach the patient to relax himself. Sometimes this can be done as a form of hypnosis (although I do not use this word with the patient) gradually leading the patient into a more and more relaxed state.

Local anaesthesia may relieve muscle spasm and may be applied as ethyl chloride sprayed on the affected muscle of a draped and protected patient or by injection of regular local anaesthetic solution deposited directly into the palpable muscle spasm.

Psychotherapy may be considered for resistant cases.

Surgical therapy

Many of the therapeutic measures described in this article are common to all four classes of temporomandibular joint pain-dysfunction. However, once the clinician identifies the cause of his patient's problem, he will select and tailor the measures that are appropriate to the problem at hand.

This discussion would be incomplete without mention of surgical intervention as a therapy. The classical operation for temporomandibular joint pain-dysfunction was for many years meniscectomy or removal of the disc. This operation has now been almost abandoned by many clinicians because of unsatisfactory results.^{15,16} Currently, acceptable surgical therapy for relief in stubborn cases of temporomandibular joint discomfort is condylotomy, based upon the work of Sir Terence Ward.¹⁵ It consists of surgical separation of the condyle and part of the ramus from the rest of the mandible and letting the condyle seek its own position of comfort. Some good results have been claimed from this procedure.

The author strongly believes, however, that most cases of

temporomandibular joint pain-dysfunction can be resolved by conservative therapy, to the point where the patient will either be free of symptoms or can tolerate the small remaining discomfort. Surgical therapy should therefore be reserved for patients who have had at least six months of conservative therapy and are still not satisfied with their progress.

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Improving your relationship with your pharmacist

A. A. Brown, PhC
Toronto

The physician-pharmacist relationship is not a good one. The *dentist*-pharmacist relationship is almost non-existent. The reasons for this are probably numerous but the most obvious is that neither the pharmacist nor the dentist is sufficiently aware of the other's needs.

The physician may adopt a "holier than thou" attitude but frequently the dentist has an almost opposite approach for fear of embarrassing himself. It is true the pharmacist has had a much more comprehensive training in pharmacology than either the physician or the dentist until comparatively recently. Fortunately, the gap is being narrowed substantially with each new class of graduates because of the greater emphasis on pharmacology and therapeutics, in early education and later clinical training. A great deal of attention is also given to therapeutics in the continuing education programs prepared for the CDA Cassette program and in various articles appearing in professional journals. It is necessarily a slow process.

Pharmacology has only been taught to the dental student, in any depth, for about six years. It is significant that graduates from that time period are the most frequent callers at the Faculty of Dentistry Pharmacy seeking advice in a situation where they have a number of unknowns. It is also significant that older graduates seldom call and few of either group have enough confidence in their local pharmacist to enquire of him. To illustrate the point, the Faculty Pharmacy has received calls — believe it or not — from Calgary, Ottawa and Victoria. Daily calls are received from the City of Toronto and surrounding municipalities, ranging from Port Hope, Oakville and Niagara Falls.

Toronto's Faculty of Dentistry students are advised throughout their training to gain a rapport with physicians (in case of an emergency) and with pharmacists for drug advice. I can only repeat this message to the dentist at large.

Let us take one recent case which came to the Pharmacy's

attention to make the point: A dentist sent a patient to the university clinic for the simple reason that the patient had a presumed periapical abscess which he could not disperse. The Pharmacy was alarmed to find that the patient had been taken penicillin "V" for *eleven* days without result. First, it was obvious the dentist had not taken a culture and his choice of drug was the one he had been taught in the past — penicillin. When the infection did not respond within 48 hours, or at most three days, he should have realized he was on the wrong track. Had he enquired of a pharmacist, he could have been quickly enlightened. Penicillin is now virtually useless against staphylococcal infections, anaerobes and all the gram negative spectrum. Almost any pharmacist would have told him that the drug of choice for staph infections was Cloxacillin or, if no pus was present and a painful swelling still persisted after attempts to drain, that most of the anaerobes (bacteroides most likely) produce *gas* and not pus. Clindamycin or tetracycline would then be the choice. A simple chart is appended which outlines the choice of antibiotic in the most common situations (Table 1).

In the dentist's defence, one must also point out that the pharmacist was almost equally to blame because he, in turn, knew little of the needs of the patient and made little effort to gain a rapport with the dentist who did.

To illustrate this last, the following was a recent occurrence at a local pharmacy: A very effective method of treating aphthous ulcer is with Betnesol pellets. These contain 0.1 mg of betamethasone in a hard, slowly dissolving pellet. It is placed as near the site of the lesion as possible and allowed to dissolve slowly. It must not be chewed or swallowed. The usual regimen is four pellets daily with the last dose given at bedtime to ensure maximum slow absorption at the site. The same manufacturer also supplies an ordinary tablet of the same strength which dissolves very rapidly. The pharmacist told the patient that he didn't have the pel-

Sensitivity of some common organisms to antibiotics. Table 1
X = drug of choice; ? = valid alternative

[illegible]

lets but that the tablet was the same strength. The treatment was useless, because the *pharmacist*, in this instance, had not done his homework.

Another little-known preparation for aphthous ulcer is a simple mouthwash which has been in use in the U.K. for the past 40 years. The product is "gargle phenol and potassium chlorate B.N.F." The formulation is appended (Formula 1). Used as a mouthwash, diluted 50-50 with water, it relieves the often severe pain from the ulcer by virtue of the anaesthetic property of the phenol. It usually effects complete regression in about three days. Any pharmacist can make it up quite cheaply.

Another commonly-occurring lesion is herpes simplex. In the very simple form, it occurs first as an "itch" and then as a small, bubble-like lesion on the lip. The only effective remedy to date is Idoxuridine (Herplex "D"). Applied as soon as the itch is noticed, regression is often complete in 24 hours. If the lesion is allowed to proliferate beyond this initial stage, the remedy stops proliferation, none the less, but regression is slower. The preparation requires a prescription and a word to your pharmacist would ensure that he had it in stock.

Appended are a variety of commonly used formulations, most of which can be prepared by your local pharmacist at a considerable saving. When a group of dentists avail themselves of this service, it makes the effort worth the while of the pharmacist, creates a rapport — and best of all — it saves money.

There is much confusion as to the legal amount of

Estimated daily intake of water and fluoride
when water contains 1 ppm of fluoride

Age (years)	Weight in Hg. (range)	Litres of water	mg fluorine (range)
1-3	8-16	.390-.560	0.39-0.56
4-6	13-24	.520-.740	0.52-0.74
7-9	16-35	.650-.930	0.65-0.93
10-12	25-54	.810-1.160	0.81-1.16

Adapted from McClure, F. J., *Amer. Dis. Child.* 66:362, 1943, and Galagan, D. J., *J. Amer. Dent. Ass.* 47:159, 1953

Recommended daily dosages of fluoride supplements* Table 3

Natural Fluoride Ion Content in Existing Water, ppm						
0-0.25		0.25-0.45		0.50-0.75		
Solution (1 mg F ⁻ /ml)		Solution (1 mg F ⁻ /ml)		Solution (1.0 mg F ⁻ /ml)		
Tablet (0.5 mg F ⁻)		Tablet (0.5 mg F ⁻)		Tablet (0.5 mg F ⁻)		
Age of child (Years)						
0-2.0	0.50 ml	1 tab	0.25 ml	0.5 tab	0	0
3-12	1.0 ml	2 tab	0.75 ml	1.5 tab	0.5 ml	1 tab

*Proprietary preparations of sodium fluoride, in solution or in tablet form, which permit simple and accurate modulation of dosage according to age and natural fluoride content of water may be confidently used.

Adapted from Nikiforuk, G. and Fraser, D.
Amer. J. Dis. Child. 107, 111, 1964.

fluoride which may be sold without a prescription. Currently in Ontario, the Drug Advisory Committee is considering placing the supply of fluorides, given as a daily supplement to prevent caries, in Schedule "C". This would require the sale only to be made by the pharmacist and a prescription would not be required. Charts of estimated optimum intake of fluoride are appended.

One word of caution: should your local pharmacist make a fluoride solution for you to use as a supplement to the local water supply, *never* supply more than 100 tablets (each 2.21 mg NaF) or *no more* than the 100 ml suggested in the tables.

Recently a pharmacist was approached by a dentist to make a fluoride supplement for a four-year old child. He pointed out to the dentist that the solution could just as easily be made stronger and a smaller dose given — a valid assumption from an economic and convenience point of view. Both dentist and pharmacist overlooked the fact that the container held more than 4 Gms of fluoride. The paediatric lethal dose is around 1.2 Gms for this age. The

R_x

A. FLUORIDE TABLETS*
Rx Sodium fluoride 1.1 mg.
Mitte 100 tablets

Label: Keep out of reach of children. Do not exceed recommended dosage.

Method A-I— To prepare Fluoridated Water (1 ppm F⁻)
Directions: 2 tablets in 1 quart of water. To be used for drinking purposes, preparation of juices, formulas, and cooking.

Method A-II— Administration of tablets according to age in areas where natural content is less than 0.25 ppm.**

Age	Number of Tablets Each Tablet = 0.5 mg. F
0-2 yrs.	1 tablet once a day, dissolved in water or juice
3-12 yrs.	2 tablets, once a day, dissolved in water or juice.

R_x

B. STOCK SOLUTION OF FLUORIDE* (1 ml = 1 mg F⁻)
Rx Sodium fluoride 0.22 grams
Water, to 100 ml
in a bottle with graduated dropper

Label: Keep out of reach of children. Do not exceed recommended dosage.

Method B-I— Preparation of fluoridated water (1 ppm F⁻)
Directions: Add 1.0 ml of stock solution (1 mg F⁻) to one quart of water, to be used for drinking purposes, preparation of juices, formulas, and cooking.

Method B-II— Administration of fluoride supplement, according to age, in areas where natural content of fluoride is less than 0.25 ppm, and is considered to be insignificant from a metabolic standpoint.**

Age	Volume of Stock Solution
0-2 yrs.	0.5 ml once a day, in a glass of water or juice
3-12 yrs.	1.0 ml once a day, in a glass of water or juice

*Proprietary preparations of sodium or potassium fluoride, in solution or tablet form, which permit simple and accurate dosage modulation according to age and natural fluoride content of water, may be confidently used.

**For areas where drinking water contains more than 0.25 ppm, the above dosages should be modified according to the schedule shown in Table II.

child ingested the contents of the entire bottle and a needless fatality resulted.

Your pharmacist at your doorstep is a “natural resource” — use him. Your queries are always welcome at the University of Toronto Faculty of Dentistry Pharmacy — (416) 978-7453. If we are unable to assist, we can channel your enquiry to your advantage.

Mr. Brown is a clinical pharmacist at the Faculty of Dentistry, University of Toronto. He can be reached at the Faculty, Room 275, 124 Edward St., Toronto, Ont. M5G 1G6.

Formulations

Gargle Potassium Chlorate and Phenol. B.N.F.

Potassium chlorate	3.5%	157.5 Gm
Liquefied phenol	1.5%	67.5 ml
Red colour (Erythrosine)	q.s.	5.0 ml
Distilled water	to 100%	4.5 litres
		(1 gallon)

Use with an equal quantity of water.

A potent bactericidal mouthwash specific for aphthous ulcers. Mild local anaesthetic, it relieves pain from the ulcerations quickly. It should be used diluted, at least five times a day. Ulcerations are usually totally regressed in 48 to 72 hours.

Dry socket paste

Benzocaine	3 Gm
Oil of cloves	6 ml
Hydrous lanolin	20 Gm
White petrolatum	30 Gm

Mix benzocaine with oil of cloves on a slab. Incorporate with lanolin and petrolatum.

1% prednisone has been added with advantage as an anti-inflammatory. Used after complete debridement of the socket and applied on a cotton tip or gauze to relieve pain.

Formulation:
Fortified zinc oxide-eugenol cement

Zinc oxide	227 Gm
Zinc acetate	7.2 Gm
Bismuth carbonate	12 Gm
Barium sulphate	5 Gm (renders cement radio-opaque)

Liquid: Eugenol with methylmethacrylate 10% or polystyrene 10%

Formulation notes: The zinc acetate being crystalline in nature should be rendered to a fine powder before mixing with the other powders. The whole should then be placed through a powder sifter to complete mixing to a fine degree.

Glycerine thymol co B.P.C.

The closest approximation to this preparation in the USA is glyco thymoline (Kress & Owen). The original formula is appended herewith but owing to the length and intricacies of preparation, an accepted amended version is also printed. This renders the product to be made in reasonable time, and at a reasonable cost in any pharmacy.

	B.P.C. Formulation	Amended Formulation
Thymol	2.5 Gm	2.5 Gm
Sod. bicard	45.0 Gm	45.0 Gm
Borax	90.0 Gm	90.0 Gm
Sod. benzoate	36.0 Gm	10.0 Gm*
Sod. salicylate	23.5 Gm	23.5 Gm
Menthol	1.35 Gm	1.35 Gm
Eucalyptol	5.8 ml	Omit*
Methyl salicyl.	1.35 ml	0.25 ml*
Alcohol	112.5 ml	200.00 ml*
Glycerine	450.00 ml	450.00 ml
Sod. metabisulphite	2.25 Gm	2.25 Gm
Colour	5.00 ml	5.00 ml

(Solution of carmine is the official recommendation and remains reasonably stable with the increased sodium metabisulphite)

Distilled water to 4.5 litres
4.5 litres
(1 gallon)

A reasonable substitute of recent innovation is the addition of 10% of glycerine to chloraseptic (Eaton Laboratories).

The original method incorporates all the oils with kaolin making it into a paste with the solution and gradually mixing with the whole. This makes efficient filtration a necessity which in ordinary circumstances is impossible. The amended version makes use of more alcohol and less or no oils, hence the product has only to be superficially filtered.

Topical fluoride gel

Sodium fluoroide	26.5 Gm
Sodium phosphate (dibasic)	10.0 Gm
Phosphoric acid to bring Ph to 4.5	Approx. 11 ml 50% soln.
Sodium carboxymethylcellulose (low viscosity)	16.0 Gm
Saccharin sodium	0.16 Gm
Tincture (essence) orange	15.0 ml
Yellow food colouring (Red may be substituted)	15.0 ml
Distilled water	to 1000.0 ml

Dissolve sod. fluoride, sod. phosphate and saccharine in about 750 ml of distilled water. Add phosphoric acid and make up to 1000 ml. Adjust Ph to 4.5 with Ph test paper. Transfer liquid to a blender, add colour and flavouring, and the carboxymethylcellulose a little at a time. Blend until smooth. The gel will thicken slightly after standing.

Zinc oxide eugenol preparations

Zinc oxide-eugenol cements set into a hardened mass when mixed. The setting time and physical properties of the resulting cement are affected by the following factors:

1. Moisture in the powder, the atmosphere or saliva.
2. Other additives (eg. methylmethacrylate or polystyrene).
3. Particle size and degree of mix of the powder.
4. Temperature.
5. Consistency of the mix.

Setting time is largely controlled by the amount of water, and the addition of zinc acetate. A firmer, more durable cement is obtained by the addition of 10% polystyrene to the eugenol.

Mummifying paste

Thymol	25.24 Gm
Cresol	2.88 Gm
Iodoform	10.56 Gm
Zinc oxide	96 Gm

Method: Crush the thymol crystals to fine powder, add the cresol gradually, then gradually incorporate remainder of the powders into a well mixed whole. This preparation is mixed with glycerine into a stiff paste *at the time of using*. Do not prepare in advance as the preparation will set with a cement-like consistency. Glycerine must be free from water and its container kept tightly sealed to counter its hygroscopic tendency.

Pressure indicator paste

Zinc oxide	206 Gm
Starch	138 Gm
White petrolatum	84 Gm
Light petroleum (Mineral oil)	162 ml or q.s.

Sufficient mineral oil should be added to allow the paste to be brushed on the denture with a stiff brush.

Silicone 10% may be added, and the consistency adjusted by omission of some mineral oil. Silicone reduces the tendency of the preparation to stick to the tissue of the mouth.

C.M.C.P. (Camphor parachlorophenol)

Parachlorophenol	35 Gm
Camphor	65 Gm

Add together and allow to liquefy. Filter.

An intra-canal mixture for use in root canal therapy. Recommended for non-vital teeth.

Irrigating solution

Sodium hypochlorite 1% as found in:
Hygeol (Wampole)
Milton
Javex

Hygeol and Milton are both reasonably pure and standardized. Javex is the well-known household bleach and is comparatively crude.

Used in endodontics to keep canal moist while instrumenting, and also to flush out debris from root canals.

Dental varnish

Copal gum	50 Gm
Colophony resin	50 Gm
Alcohol absolute (95%)	500 ml

Dissolve. This process usually takes about 48 hours. Filter, and make up to 1000 ml with alcohol. Then add ether (technical) 1000 ml.

As a diluent to thin out the varnish if it gets too thick by evaporation of the solvent. Add sufficient of a mixture of alcohol and ether equal parts.

This preparation is highly inflammable and evaporates quickly. Keep tightly closed.

Camphor parachlorophenol (C.M.C.P.)

Camphor	35 Gm
Parachlorophenol	65 Gm

The two solids when placed together liquefy and produce a viscous clear fluid. Chiefly used in treatment of root canals.

Rubber base solvent

Light mineral oil	160 fl oz
Hydrous wool fat	0.5 oz
Perfume	q.s.

A ready solvent for rubber base impression material. Not recommended for removal from clothing. For this purpose perchlorethylene or ether is recommended.

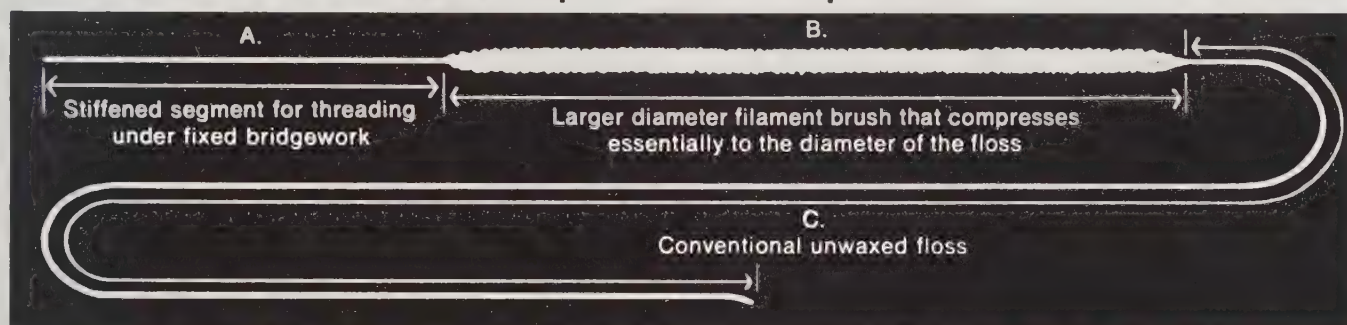
Formocresol

Formaldehyde 37%	19 ml
Cresol	35 ml
Glycerine	15 ml
Alcohol and water	p.a. to 100 ml

Chiefly used in pulpotomy in primary teeth, and sterilization of root canals in endodontic treatment. It is highly cytotoxic.

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BRITISH COLUMBIA — Creston. Well established, busy 3 year old practice, two operatories fully equipped, new equipment, working area of approximately 1800 sq. ft. to share with another dentist, low rent, cost sharing, excellent lease, hospital privileges. Small city with good climate and excellent recreation facilities. Will be returning to graduate training. Replies to Dr. T. Bianco, Box 937, Creston, B.C.

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BRITISH COLUMBIA — Vancouver. Practice for sale. General preventive practice with majority of patients between the ages of 20-40 years. Date of departure: The end of August 1976. Contact Dr. M. Wilby, #733-925 West Georgia, Vancouver, B.C.

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ALBERTA — Grande Cache. Two associates required for practice in Grande Cache. Located in Rockies, next to Jasper National Park. High gross, hospital privilege available. Please reply to Dr. J. D. Pace, Box 1305, Hinton, Alberta or phone (403) 865-3823.

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BRITISH COLUMBIA — Vancouver. Associate required for general practice in Vancouver, modern centrally located dental office. Reply to 2107 W. 16th Avenue, Vancouver, B.C., 733-2225.

BRITISH COLUMBIA — Vancouver. Group practice needs help. Contact Dr. W. D. Brymer, North Vancouver Dental Group, 124 East 15th Street, North Vancouver, B.C. V7L 2T9. Phone (604) 987-5221.



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ONTARIO — Oshawa. Associate needed. Modern efficient office in high insurance area. Well established group practice — 3 dentists, 2 hygienists, extended duty personnel. Exceptional staff motivated towards preventive dentistry. 8 operatories, Cox systems, Panorax. Present associate leaving for 2 years U.S. postgraduate work on May 29, 1976. Please reply to CDA Box Number 1583.

ONTARIO — Shelburne. Associate required. For preventive oriented practice in fast growing small town 60 minutes northwest of Toronto, newly renovated large modern office. Exceptional drawing area. Arrangements open to the right person. Reply to Dr. R. G. Bond, P.O. Box 10, Shelburne, Ontario L0N 1S0. Telephone (519) 925-3530 office or (519) 925-2518 home.

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ONTARIO — Winchester. Associate required — full or part time for busy general practice in Winchester. Two thousand (2,000) sq. ft., two-year-old building has Panelipse, Denture Therapist, and Preventive Control program. Hospital privileges available. Present associate leaving for personal reasons. Contact Dr. R. D. Wells, Box 729, Winchester, Ont., L0C 2K0. Phone (613) 774-2616 or (613) 448-2889.

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ONTARIO — Kitchener-Waterloo. Dental Hygienist required for full or part time position. Modern preventive practice in a progressive University city 50 miles west of Toronto. Reply to: Dr. Garry Howatson, 124 Weber St. N., Waterloo, Ontario. Phone (519) 885-4770 office or 885-1809 residence.

ONTARIO — Manitowadge. Dentist required by mid-August, 1976 to take over well established preventive oriented family practice in Manitowadge, Ontario. Two chair equipped clinic, office space and housing available at reasonable rental rates. Manitowadge has been approved as an underserved area for dentistry by the Ministry of Health. Guaranteed *net* professional income of \$28,000 has been established by the Ministry of Health for the selected dental practitioner who agrees to enter private practice in this underserved area. Present dentist vacating practice after 4 years' service. (Dr. L. Rabeau, (807) 826-3596). For further details contact E. Lyons, Chief Administrative Officer, The Corporation of the Township of Manitowadge, Manitowadge, Ontario. Telephone (807) 826-3227.

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ONTARIO — Toronto. Dentist (grad. 72) is looking for associateship in a Preventive/Family Practice in the Toronto area or suburb. Call collect (514) 342-9162 or write to CDA Box Number 1595.

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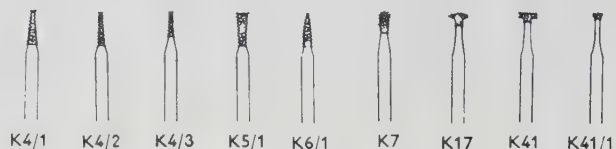
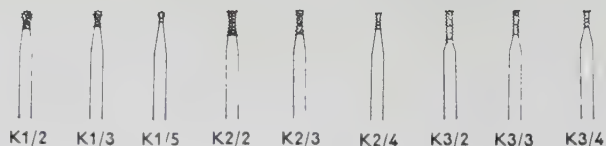
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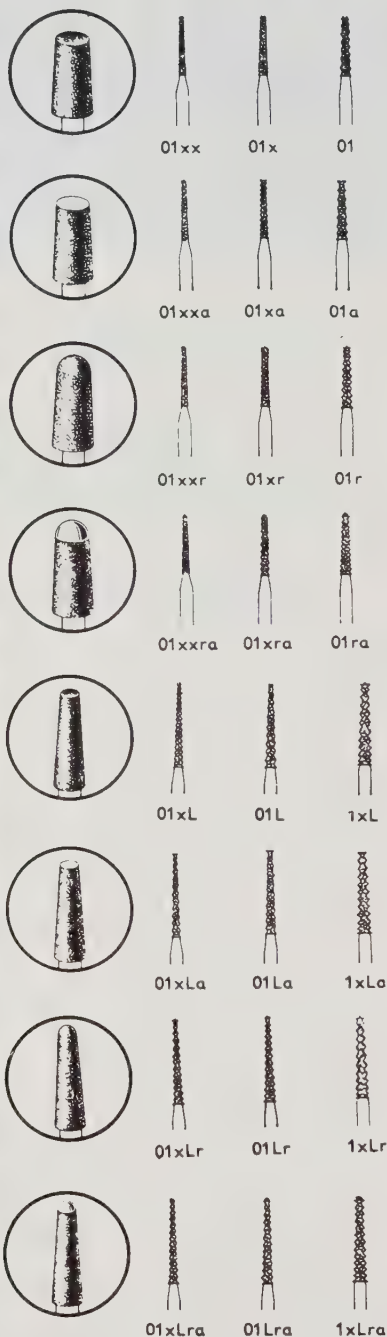


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ADVERTISERS' INDEX

Ash Temple Ltd.	319
Associated Travel Services, Inc.	317
Astra Chemicals Ltd.	OBC
Block Drug	293
The L. D. Caulk Co. of Canada	289
Columbia Dentoform Corp.	310
Dentsply International	284, 291, 299
Educational Health Products, Inc.	315
Feature Finance, Inc.	310
Charles E. Frosst	296
Kodak Canada Ltd.	IFC
Lawson McKay Tours Ltd.	IBC
Lever Detergent	287
New Orleans Dental Conference	286
Nobilium	295
Procter & Gamble	283
Pfingst & Company, Inc.	320
Professional Pharmaceutical	303
Whaledent International	304

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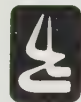
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1. Novak, A.J.: *Oral Surg.* 34:34, July, 1972.



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CDA MOVING DAYS SET

All services at CDA's Toronto headquarters will start moving to Ottawa on July 26. Acting Executive Director, Lloyd Stevenson, estimates it will take approximately a week for furniture and supplies to be packed and shipped and for transferred employees to arrive in Ottawa. Some of the Ottawa staff have already been engaged and will be at the new headquarters by mid-July; others will start in August after receiving training in Toronto.

NEW HEADQUARTERS ADDRESS: 1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6

NOVA SCOTIA GOES SLOW ON NEW DENTAL SCHOOL

During consideration of the Nova Scotia government health estimates, health minister Allan Sullivan stated that he had no intention of rushing into construction of a new dental school in the province until he had obtained alternatives and commitments from members of the dental profession.

It has been proposed that the four Atlantic provinces combine resources to enlarge Dalhousie Dental School. To date only New Brunswick and Prince Edward Island have each made such a commitment. Newfoundland and Nova Scotia have not yet agreed to participate in the expansion plans. Federal health resources funds would provide approximately \$16 million but the four provinces would have to provide another \$9 million plus operating costs.

QUEBEC CHILDREN NOT USING DENTICARE

Even though the Quebec government has just extended denticare to all children in the province under the age of 10, Charles Gosselin, president of the Order of Dentists of Quebec says that only two out of seven use the program.

Dr. Gosselin announced at Les Journees Dentaires du Quebec that the Order has commissioned sociology students from Laval University to conduct an 18-24 month study of the dental profession in Quebec and to make recommendations aimed at better distribution and accessibility of services throughout the province. There are 1,300 dentists in the province and all but 60 participate in the denticare plan.

NO FIRM DATE FOR START OF DENTICARE IN B.C.

Speaking at the College of Dental Surgeons convention in Vancouver, provincial health minister Bob McClelland stated that publicly-funded denticare is still a government commitment but no date has yet been set. Denticare will commence "when the province can afford it."

Out-going president, Robert Hicks, pointed out that the College has been looking for other sources of money to improve dental care, including the funding for the development of rural dental health care clinics. More public education is required says Dr. Hicks and more fluoridation of public water. Only 11 per cent of B.C.'s population drinks fluoridated water. Unfortunately, the new health minister is on record as being opposed to mandatory fluoridation.

L'ADC FIXE LA DATE DE DEMENAGEMENT

Tous les services du siège social de l'ADC à Toronto seront déplacés à Ottawa à partir du 26 juillet. M. Lloyd Stevenson, directeur exécutif par interim, estime qu'il faudra environ une semaine pour emballer et déménager les meubles et diverses fournitures et pour permettre au personnel de se déplacer. La majorité des employés du bureau d'Ottawa seront engagés sur place après l'installation de l'ADC dans le nouvel immeuble.

NOUVELLE ADRESSE DU SIEGE SOCIAL: 1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6

LES ENFANTS DU QUEBEC NE PROFITENT PAS DU REGIME DE SOINS DENTAIRES

Malgré l'expansion récente du régime de soins dentaires qui s'applique maintenant à tous les enfants de la province âgés de moins de dix ans, le Dr Charles Gosselin, président de l'Ordre des dentistes du Québec signale que seulement deux enfants sur sept profitent du régime.

Le Dr Gosselin a déclaré lors des Journées dentaires du Québec que l'Ordre a chargé quelques étudiants en sociologie de l'Université Laval d'effectuer une étude de 18 à 24 mois s'appliquant à la profession dentaire au Québec, dans le but de présenter des recommandations destinées à assurer une distribution et un accès plus équitables des services dans toute la province. Il y a actuellement 1300 dentistes qui exercent dans la province et tous, à l'exception de soixante, participent au régime de soins dentaires.

LENTS PROGRES POUR LA NOUVELLE ECOLE DENTAIRE EN NOUVELLE-ECOSSE

Alors qu'il étudiait les prévisions budgétaires du domaine de la Santé du gouvernement de la Nouvelle-Ecosse, le ministre de la Santé, M. Allan Sullivan a déclaré qu'il n'avait absolument pas l'intention de se lancer dans la construction d'une nouvelle école dentaire dans la province avant qu'il n'ait obtenu d'autres suggestions et engagements de la part des membres de la profession dentaire.

Il est question de réunir les ressources des quatre provinces atlantiques pour agrandir l'école dentaire Dalhousie. Jusqu'à présent, seulement le Nouveau-Brunswick et l'Ile du Prince-Edouard se sont engagés à participer aux projets d'expansion, alors que Terre-Neuve et la Nouvelle Ecosse ne l'ont pas encore fait. On envisage que les services fédéraux de la Santé contribueront environ \$16 millions mais que les quatre provinces seront tenues de verser \$9 millions plus les frais d'exploitation.

AUCUNE DATE N'EST FIXEE POUR LA MISE SUR PIED DU REGIME DE SOINS DENTAIRES EN C.B.

Lors de l'assemblée du Collège des chirurgiens-dentistes à Vancouver, M. Bob McClelland, ministre provincial de la Santé, a déclaré que le gouvernement s'était engagé à établir un régime de soins dentaires payé par des fonds publics mais qu'aucune date n'avait encore été fixée à cet égard. Le régime de soins dentaires sera établi "lorsque la province pourra se le permettre."

Le président sortant, Dr Robert Hicks, a fait remarquer que le Collège est à la recherche de sources supplémentaires de fonds pour améliorer les programmes dentaires, y compris des fonds pour développer des cliniques rurales de soins dentaires. Le Dr Hicks a joute qu'il serait bon d'élever le niveau d'éducation du public et d'augmenter la fluoruration des eaux domestiques. Seulement 11% de la population de C.B. boit actuellement de l'eau fluorée. Malheureusement, le nouveau ministre de la Santé a, selon le compte rendu, affirmé s'opposer à la fluoruration obligatoire.

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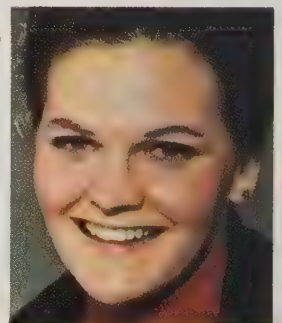
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JOURNAL

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Special Features

Dentistry for handicapped children:

The history of dentistry for the handicapped: past, present and future — Kamen	347
Preventive dentistry for handicapped children — Hargreaves	352
Provision of a general anaesthetic service for restorative dentistry — Munroe	354
General dental care of the cleft palate patient — Dungy	356

Regular Features

Announcements	328
Editorial	330
Convention news	332
Dentistry in the news	340
Les actualités dentaires	335
Deaths	344
In memoriam	345

Article

Succinylcholine induced apnoea: Report of case — Precious	358
---	-----

Classified advertising	360
------------------------	-----

Advertisers' index	362
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La direction du Journal ne partage pas nécessairement les opinions qu'expriment ses collaborateurs à moins que l'Association Dentaire Canadienne ne les ait adoptées officiellement.

Announcements/Avis

Information about other meetings or courses, including American continuing education courses, may be obtained by writing to CDA headquarters.

Canadian Dental Association
1976, Edmonton, Alta, Sept. 12–15.

Fédération Dentaire Internationale
1976, Athens, Greece, Sept 26–Oct 2;
1977, Toronto, Oct 22–28.

Canadian Meetings

Canadian Society of Oral Surgeons, at Halifax. July 24–27, 1976. D.J. Murphy, 1773 Beech St., Halifax, N.S.

Canadian Academy of Oral Radiology, at Edmonton. Sept. 12, 1976. Dr. C. E. Hawrish, Dentistry-Pharmacy Centre, University of Alberta, Edmonton, Alta T6G 2H7

Canadian Occlusion Symposium, at Chateau Lacombe, Edmonton. Sept. 12–13, 1976. J. N. Nasedkin, #415, 925 West Georgia, Vancouver, B.C. V6C 1R5

Canadian Academy of Endodontics, at Chateau Lacombe, Edmonton. Sept. 14–15, 1976. Dr. H. Wiener, 4141 Sherbrooke St. W., Suite 515, Westmount, Que. H3Z 1B8

Canadian Society of Forensic Science, at Quebec City. Oct. 13–15, 1976. Dr. R. B. J. Dorion, Canadian Society of Forensic Science, 63 Kilbarry Cres., Ottawa, Ont. K1K 0H2.

Montreal Dental Club Pre-Convention Seminar, at Montreal. Nov. 13–14, 1976. Miss M. Komarnicka, 4166 St. Catherine St. W., Montreal 215, Que.

Montreal Dental Club Fall Clinic, at Montreal. Nov. 15–17, 1976. Miss M. Komarnicka, 4166 St. Catherine St. W., Montreal 215, Que.

Les Journées Dentaires du Québec, at Quebec Hilton, Quebec. May 22–26, 1977. Dr. M. R. Lang, 5171 Decarie Blvd, Montreal, Que. H3W 3C2.

Congress on Cleft Palate and Related Craniofacial Anomalies, at Royal York Hotel, Toronto. June 5–10, 1977. Deadline for abstracts Sept. 30, 1976. Advance registration closes Dec. 31, 1976. Congress Secretariat, 191 College St., Toronto, Ont. M5T 1P7.

Western Canada Dental Society, at Banff Springs Hotel, Banff, Alberta. July 3–6, 1977. Dr. D. Pedlar, Publicity Chairman, Western Canada Dental Society, 1711 – 4th St. S.W., Ste 303, Calgary, Alta. T2S 1V8.

International Meetings

International Association of Dental Students Annual Congress, at Bern, Switzerland. July 30 – Aug 9, 1976. Dr. T. A. Shapero, 170 The Donway West, Ste 108, Don Mills, Ont. M3C 2G3.

New Zealand Dental Association, at Wellington, New Zealand. Aug 23–27, 1976. Dr. M. J. Hollis, NZDA Conference, PO Box 2214, Wellington, New Zealand.

American Society of Oral Surgeons, at New York. Sept. 17–21, 1976. American Society of Oral Surgeons,

211 East Chicago Ave., Chicago, Ill, 10611, USA.

American Institute of Oral Biology, at Palm Spring, Calif. Oct. 22–26, 1976. Executive Secretary, American Institute of Oral Biology, P.O. Box 481, South Laguna, Calif. 92677, USA.

American Academy of Implant Dentistry, at Las Vegas. Nov. 11–13, 1976. American Academy of Implant Dentistry, 469 Washington St., Abington, Mass. 02351, USA.

American Prosthodontic Society, at Las Vegas. November 12–13, 1976. R. B. Underwood, 919 North Michigan Ave., Ste. 2108, Chicago, Ill. 60611, USA.

American Dental Association, at Las Vegas, Nevada. Nov 14–18, 1976. Convention Bureau, American Dental Association, 211 East Chicago Ave., Chicago, Ill, 60611, USA.

American Academy of Periodontology, at San Francisco. Nov 17–20, 1976. Miss M. Holmquist, 211 East Chicago Ave., Ste. 924, Chicago, Ill. 60611, USA.

International Congress of the Association Dentaire Française, at Paris, France. Nov 30 – Dec 4, 1976. Dr. J. Charon, Association Dentaire Française, 22 avenue de Villiers, 75017, Paris, France.

American Society for the Advancement of Anesthesia in Dentistry, Congress on Modern Pain Control, at Monte Carlo, Monaco. Dec 7, 1976. Dr. A. Reyes-Guerra. 475 White Plains Rd, Eastchester, NY, USA.



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EDITORIAL

Balancing the budget

There was great satisfaction to all members of the Journal staff and the executive of the Canadian Dental Association, when this year's audit came down. Now it was official — the Journal for the first time in its 41 years had all but broken even. The deficit was a minor \$4521. Without the drop in advertising revenue brought about by the November/December mail strike, the Journal would have shown a small profit on a full 12 issues.

A profit is certainly forecast for 1976 if the first six months of operation holds true to pattern for the balance of the year.

For years, the membership benefit of a worthwhile scientific and professional journal had cost the Association upwards of \$60,000 a year in subsidies. Five and ten year projections showed that if costs and advertising were not better balanced, the future would hold only higher and higher losses. So to the new graphics approach in layout and design of the Journal, the staff added intensified sales effort and draconian management control in 1974/75.

We've heard some complaints — that the total size of some individual copies has been reduced and that scientific content has been changed, but we've had far more compliments for our efforts than darts. A Starch Readership Survey, in which some of you participated, and the Task Force Questionnaire of the entire membership produced concrete guidelines for the type of material you wanted to appear in your Association journal.

The dental trade responded increasingly well to our modern design and layout and the implied increase in readership which this meant. Advertising increased with sales effort. Then the only trick was to keep total costs, including not just printing, postage and salaries, but all costs in line. Journal budgeting even includes payment to CDA for overhead items like floor space, telephones and office supplies.

The Journal is now approaching a quarter of a million dollars in revenue but, over the past two years, as first the Managing Editor and then as Editor, I have liked to think that the Journal was worth far more than that in its service to the profession and the individual member. The Journal is the one "tie that binds" all members and all provincial associations together. It must reflect not only current scientific and clinical views from Canadian authors but accurately report on the changing political climate, the facts of organized dentistry with its stresses and changes which will ultimately affect everyone. We think we've accomplished all this — as well as balancing the budget.

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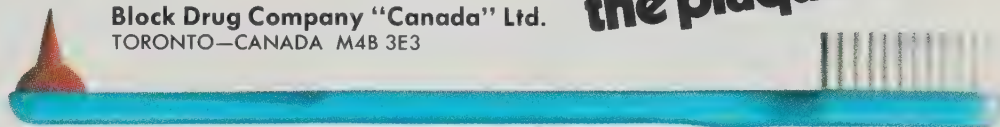
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CDA NATIONAL CONVENTION EDMONTON SEPTEMBER 12-15, 1976

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The exhibit hall for the 1976 CDA National Convention is almost completely sold out!

Headquarters for convention exhibits will be the Hotel Macdonald, selected for its excellent lighting, air conditioning and complete flexibility of electrical services. The Tonquin Room lends itself perfectly to a scientific exhibit area as it has an excellent traffic pattern.

The exhibitors' booths will feature many familiar faces joining us once again to help the Canadian Dental Association "Do it in Edmonton." They include: Amalgamated Dental, Ash Temple, Astra Chemicals, Ando Dental Labs., Best's Professional Company Ltd., Block Drug Co., John O. Butler Co., L.D. Caulk Co. of Canada, Colgate-Palmolive, Cox Systems, C.M.L. Medical Leasing Ser-

vice, Dentsply International, Denco, Hoffmann-La Roche Ltd., Inter-Unitek Canada Ltd., Johnson & Johnson, Kerr Canada, Lux & Zwingerberger Ltd., Mardan Business Systems, 3M Canada Ltd., Nobilium, Odonto, Penwalt of Canada, Procter & Gamble Co., Tri-Hawk, United Dental Supply Corp., D.H. Wahler Ltd., as well as other regulars.

It's a pleasure to greet some new exhibitors to Edmonton. Among them are Cross Canada Distributors Ltd., Lambert Canada Ltd., and Uniform World. With the wide variety of scientific exhibits available you will want to program the exhibits into several time slots. Exhibit hours will be from 9:30 a.m. to 5:30 p.m. on Monday and Tuesday, September 13 and 14, and from 9:30 a.m. to 12:00 noon on Wednesday, September 15.

PRE-REGISTRATION DRAW

Register today for the Canadian Dental Association's National Convention to be held September 12-15 in Edmonton and win a flight for two to Athens for the 64th Annual World Dental Congress.

To be eligible for the draw your registration must be postmarked on or before July 31, 1976.

Don't delay! Fill out the registration form in the back of this issue and send it in today.

Royal College of Dentists of Canada

The Royal College of Dentists of Canada will hold its Annual Business Meeting on September 10 in the Salon Edmonton of the Hotel Macdonald. In the evening a dinner and dance will be held at the University of Alberta's Faculty Club.

The Convocation will take place on Saturday, September 11, at 3:00 p.m. in the Wedgwood Room of the Hotel Macdonald. Dr. W. G. McIntosh, former executive director of the Canadian Dental Association will give the Convocation address.

During the Convocation, honorary fellowships will be conferred on Dr. G. A. Morgan and Dr. O. J. Yule of Toronto, Dr. E. R. Ambrose of Montreal, and Dr. G. A. Brass of Winnipeg. Fellowships by examination will also be conferred.

Installation Luncheon

One of the highlights of the CDA National Convention is the Installation Luncheon, when the new president officially takes over his office for the forthcoming term.

The 1976 Installation Luncheon will be held at noon on Wednesday, September 15, at the Edmonton Plaza Hotel Ballroom. Tickets for the luncheon are free, but the number is limited. Don't be disappointed, order your ticket now.

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Three top speakers at occlusion seminar

The Canadian Occlusion Symposium will be holding an occlusion seminar on September 12-13 at the Chateau Lacombe Hotel in Edmonton.

The seminar features three expert speakers: Lawrence A. Weinberg of New York City will deal with "TMJ function and its effect on concepts of occlusion"; Parker E. Mahan of Gainesville, Florida, will discuss "Differential diagnosis of craniofacial pain"; and Frank V. Celenza of New York City will speak on "The centric position."

This seminar is open to all registrants at the CDA National Convention. The Canadian Occlusion Symposium makes an additional charge of \$100 to attend their meetings. For further information, contact: Dr. J. N. Nasedkin, 415-925 West Georgia, Vancouver, V6C 1R5. Telephone: (604) 682-2027.

Radiology '76: Technique and interpretation

C. G. Baker, head of the Radiology Department at the University of Manitoba's Faculty of Dentistry, and president of the Canadian Academy of Oral Radiology, will conduct a session designed to clear confusion from the area of dental x-ray equipment and instrumentation.

There is a need for dentists to be able to maximize diagnostic information and minimize radiation exposure. Discussion during this session will cover available equipment, including the current state of panoramic radiography, along with techniques for acquiring best results. In addition, presentation of case material will be made with an eye to developing criteria for interpretation of both intra-oral and extra-oral films.

A native Manitoban, Dr. Baker has engaged in important research projects, contributed to a variety of dental publications and lectured to many health organizations in Canada and the United States.

INTEGRATED OCCLUSION IS THEME OF TEAM PRESENTATION

The management of partially edentulous patients requiring combinations of prostheses often presents problems in the sequencing of procedures and in the development of acceptable occlusion. The presentation to be given by D. V. Chaytor and V. B. Shaffner is designed to combat these problems. It will deal with: (a) simple aids to better occlusion and (b) ten easy steps to integrated occlusion.

Dr. Chaytor and Dr. Shaffner will make their presentation as a team, using dual projector controls. Since

many of the cases presented will be those they have treated together, each one will be able to comment on his own area of expertise.

Illustrations will be given of improvement of patients' occlusions, without full mouth reconstruction, by the use of crowns, onlays, fixed prostheses and prosthetic tooth modification.

Both clinicians are graduates of Dalhousie University where they are presently teaching in the Faculty of Dentistry's Prosthodontic Department.

IN-DEPTH STUDY OF FLUORIDE THERAPY

Prevention is undoubtedly the major theme of modern dentistry. Basic to the concept of prevention is the use of fluorides in communal water supplies, in dietary supplements, in topical application in dental offices and in dentifrice and rinse form for home use. Understanding the mechanisms of fluoride action is required of dentists so that rational choices may be made in all these areas for use on patients.

The presentation by Stephen Wei will cover all these areas of fluoride

therapy and, because of his personal involvement in so much of the current research, can be considered a definitive statement of all that is presently known on the subject.

Dr. Wei is a professor and head of the Department of Pedodontics at the University of Iowa where much of his time is devoted to research on fluorides in dentistry, nutritional effects on dental health and pathogenesis and prevention of dental caries.

PROGRAMME DE STAGE D'ETE POUR LES ETUDIANTS EN ART DENTAIRE DE L'ALBERTA

L'Association dentaire de l'Alberta a mis sur pied un programme qui permettra aux étudiants en art dentaire d'acquérir de l'expérience pratique au cours des mois d'été. Le principe de ce programme a été approuvé par le Conseil d'administration de l'ADA et par la Faculté dentaire de l'Université d'Alberta; le règlement proposé en vue de modifier le "Dentistry Act" (loi provinciale sur les soins dentaires) a été soumis au lieutenant-gouverneur pour approbation. Ce programme pourra sans doute démarrer au cours de l'été.

Le projet de règlement qui permettra aux étudiants d'exercer sous surveillance pendant l'été se lit comme suit:

"Les étudiants du 1er cycle en art dentaire inscrits aux cours, et en règle avec la Faculté dentaire de l'Université d'Alberta pourront exercer l'art dentaire dans un cabinet, sous la supervision directe d'un membre de l'Association dentaire de l'Alberta. Les soins

prodigués directement par l'étudiant au patient devront se limiter à ce que l'étudiant a appris au cours de ses études et qu'il est en mesure d'exécuter avec compétence, sous la surveillance précitée.

"L'étudiant devra obtenir un permis temporaire pour la période du stage.

Il devra envoyer avec sa demande:

1. Un certificat de niveau d'études et de compétence, de la Faculté dentaire de l'Université d'Alberta.
2. Le nom et l'adresse de l'employeur.
3. Une preuve confirmant que l'employeur fournira l'assurance de responsabilité civile et la supervision directe dans le cabinet.

"L'étudiant n'aura le droit d'exercer qu'après réception de l'autorisation écrite du registraire de l'Association dentaire de l'Alberta ou de son délégué. Ce permis définira les soins que l'étudiant sera autorisé à donner."

L'Académie canadienne de pathologie buccale

Le Dr J. P. Sapp, professeur adjoint (associate professor) en pathologie à l'University of Western Ontario, a récemment été élu président de l'Académie canadienne de pathologie buccale/Academy of Oral Pathology.

Les membres qui siégeront également au Conseil exécutif au cours de l'année prochaine sont les suivants: Drs H. M. Dick, Edmonton, président élu; J. R. Trott, Winnipeg, président sortant; J. D. Spouge, Vancouver, vice-président; B. B. Harsanyi, Halifax et T. P. McCrory, Montréal, membres. Ces membres du Conseil ont été élus lors de la 10ème assemblée annuelle de l'Académie tenue conjointement avec l'American Academy of Oral Pathology à Atlanta, Georgia, au cours du mois d'avril. L'assemblée de 1977 sera de nouveau tenue conjointement avec l'American Academy à Portland, Oregon, au cours du mois de mai.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes au 31 mai 1976:

<i>Fonds avec garantie</i>	\$12.624;
<i>Fonds à revenu fixe</i>	\$16.900;
<i>Fonds d'actions ordinaires</i>	\$29.057.

L'avoir total (valeur marchande) du régime se montait à \$24,154,656.38.

Au cours du mois précédent, les

transactions ont été les suivantes:

achat, 100 shares Bell Canada, 2,000 shares Moore Corp., \$100,000 B.C. Telephone note, \$200,000 Imperial Oil note. Vente, \$100,000 Barclays Canada note, \$500,000 Noranda Mines note, 3,000 shares Hudsons Bay, \$100,000 Aluminum Co. note, \$500,000 General Motors note.

Pour de plus amples renseignements, veuillez écrire à CDA-sponsored Pension and Insurance Plans, 14 Madison Ave., Toronto, Ont. M5R 2S1.

La Société dentaire de Québec

La Société dentaire de Québec vient d'élire les personnes suivantes pour faire partie de son Conseil exécutif pour l'exercice 1976-77.

Il s'agit des Drs Jean Laporte, président sortant; Denis Veillette, président; Armando Simard, vice-président; Clément Caron, secrétaire; Jean Bussière, trésorier; Victor Goodyer, Denis Laverdière, Jean-Luc Rivest, Jean-Claude Belletrouse et Bernard Bélanger, administrateurs.

CONGRES NATIONAL DE L'ADC DU 12 AU 15 SEPTEMBRE, 1976

LE PARC NATIONAL DE JASPER

Le parc national de Jasper, l'une des plus fameuses et des plus belles attractions du Canada, ne se trouve qu'à quatre heures de train ou de route d'Edmonton. C'est une obligation sur tout itinéraire de voyage à l'occasion d'un congrès.

Le parc national de Jasper réunit une fascinante variété de paysages, ce sont tantôt des lacs ayant la limpidité du cristal, alimentés par des eaux glaciaires, tantôt d'immenses cascades ou des rivières souterraines et, par-dessus tout, ses montagnes.

Projetez une excursion de deux jours à cheval, ou en mettant le sac au dos, au Lac Maligne ou à la vallée du Tonquin. Vous pourrez pratiquer le scuba au lac Edith ou la pêche dans l'un ou l'autre des lacs bien garnis du parc. Si vous êtes un amateur de golf, prévoyez quelques jours au Jasper Park Lodge où les pelouses sont de premier ordre. Quelque soit votre sport favori, vous trouverez ce qui vous intéresse au parc national de Jasper.

Et attention — n'oubliez surtout pas votre appareil-photo!

PROSTHESES FIXES ET DENTISTERIE OPERATOIRE

Au cours de l'histoire de l'art dentaire, les praticiens n'ont jamais eu affaire à une telle multitude de nouveaux matériaux et de techniques innovatives qui leur sont proposés de nos jours.

Les délégués qui assisteront au congrès d'Edmonton reconnaîtront donc l'avantage d'être guidés dans le dédale créé par les prétentions des fabricants par une autorité mondiale du domaine des matériaux dentaires et des techniques restauratrices. En effet, le Dr Gordon Christensen, professeur clinique de dentisterie à l'University of Colorado, exposera aux membres du congrès les récents progrès au chapitre des prothèses fixes et de la dentisterie opératoire. Dr Christensen traitera des sujets suivants: gravure à l'acide pour les restaurations; attelles, incrustations et remplacement de dents perdues; choix d'un alliage à base d'argent pour les emplois courants; comparaison de techniques et de matériaux utilisés pour l'enregistrement intra-buccal avec

maquettes; comparaison des matériaux et techniques utilisés pour les empreintes; ciments dentaires, métaux semi-précieux et nouvelles préparations pour les cavités.

Diplômé de la faculté dentaire de l'University of Southern California en 1960, Dr. Christensen a également obtenu une maîtrise de l'University of Washington ainsi que son doctorat en éducation et psychologie à l'University of Denver. Il est détenteur du diplôme de l'"American Board of Prosthodontics (Fixed)" et membre des Collèges dentaires américain et international. Il fait partie de nombreuses organisations scientifiques dans le domaine dentaire et il est également membre du Conseil des fournitures et appareils dentaires de l'American Dental Association. Conférencier renommé, le Dr Christensen est l'auteur de quelque cinquante articles et a collaboré à la rédaction de trois manuels d'enseignement.

Dentisterie prothétique

Lors d'une présentation, le major E. D. Cragg, chef du service des prothèses amovibles de l'École des services dentaires des Forces canadiennes à Borden, Ontario, examinera deux aspects complexes de la dentisterie prothétique.

Au cours de cette présentation, le major Cragg traitera de dentier partiel amovible à extension distale et de prothèse immédiate. Lors de l'étude du partiel à extension distale, la discussion portera sur le dessin de prothèses, la technique des empreintes et l'occlusion dans le but de démontrer une méthode de contrôler la tension occlusale. L'étude de la prothèse immédiate portera sur les étapes précédant le traitement ainsi que le traitement même et l'amélioration des techniques d'empreintes et de prothèses hybrides.

Diplômé de l'Université de l'Alberta en 1967, le major Cragg a terminé sa résidence en prothèses amovibles au Corps dentaire de l'armée américaine à Fort Benning, en Georgie. Il est membre de l'Académie canadienne des prothèses et de l'American College of Prosthodontics.

Représentation internationale

L'Association dentaire canadienne accueillera des visiteurs du monde entier au cours de son congrès national qui se tiendra à Edmonton en 1975. Déjà, une centaine de dentistes suisses ainsi que des délégués des États-Unis, de Nouvelle-Zélande et de Grande-Bretagne nous ont fait parvenir leurs inscriptions.



TOUS LES DENTIFRICES AU FLUORURE NE SONT PAS PAREILS.

es dentifrices au fluorure diffèrent dans leurs formules et leurs propriétés. Nous croyons que Colgate avec MFP a des avantages spécifiques que vous devez connaître.

Action du MFP. Des études cliniques démontrent que le MFP (monofluorophosphate de sodium de Colgate), utilisé dans des conditions d'usage normales, est efficace pour transformer la couche d'apatite de surface de la dent (un hydroxyphosphate de calcium) en fluorapatite (un fluorophosphate de

calcium). La dent devient ainsi plus résistante à la carie.

MFP = stabilité. Si on entrepose certains dentifrices pendant un an, ils peuvent perdre la moitié de leurs ions de fluorure, mais le fluorure MFP de Colgate* est plus stable. En effet, même après trois ans, le monofluorophosphate de sodium demeure en grande partie soluble et peut encore agir sur l'émail des dents.

MFP = problème de taches éliminé. Tandis que certains dentifrices ont tendance à tacher les dents, il

est bon de savoir que Colgate avec MFP ne présente pas ce problème.

La prochaine fois que la mère d'un enfant sujet aux caries demandera votre avis sur les dentifrices au fluorure, souvenez-vous de Colgate avec MFP...un traitement au fluorure amélioré.

Monographie du produit expédiée sur demande. Adressez-vous à: Services professionnels, Colgate-Palmolive Limited, 64, avenue Colgate, Toronto, Ontario M4M 1N7.



"Colgate avec MFP s'est révélé un dentifrice préventif contre la carie dentaire et son emploi peut avoir une valeur importante lorsqu'on l'utilise dans le cadre d'un programme d'hygiène buccale exécuté avec application et de soins dentaires professionnels réguliers."

L'Association Dentaire Canadienne.

Colgate-Palmolive Co.

*Marque déposée

Présentation de manuscrits

Ce résumé des instructions d'usage a été établi à l'intention des personnes qui désirent préparer des manuscrits en vue de leur publication dans le *Journal de l'Association Dentaire Canadienne*.

Manuscrits

Les manuscrits soumis au rédacteur doivent être accompagnés d'une lettre d'envoi demandant leur publication dans le Journal. On doit envoyer deux exemplaires — l'original et une copie au papier carbone — le tout (texte, citations, tableaux, légendes, bibliographie, etc.) dactylographié avec double interligne, sur un seul côté de la feuille (8½ x 11 pouces), avec de grandes marges sur les quatre bords. L'auteur devrait toujours conserver une copie au papier carbone de tout manuscrit proposé. Tout article doit être accompagné d'un résumé de son contenu.

Les articles originaux seront examinés et acceptés à la condition qu'ils ne soient soumis qu'au Journal seul et qu'ils ne puissent pas être reproduits sans le consentement du rédacteur ni celui de l'auteur.

Le rédacteur se réserve le droit de disposer l'article dans l'espace disponible et d'apporter au manuscrit les modifications éditoriales usuelles et nécessaires, qui comprennent les corrections grammaticales et orthographiques, l'éclaircissement des passages obscurs et l'adaptation au style du Journal. Aucun changement important ne sera effectué sans consultation préalable de l'auteur. L'auteur principal recevra soit le manuscrit modifié, soit les épreuves pour les contrôler avant leur publication.

Titres

Ils doivent donner une bonne idée de l'article et rester aussi brefs que possible. Les longs titres détournent le lecteur, présentent des problèmes de typographie et de disposition et rendent difficile le classement en bibliothèque.

Références

Les références à des oeuvres publiées devraient se limiter au minimum nécessaire pour guider le lecteur qui désire étudier plus profondément le sujet. L'auteur ne doit pas citer un article qu'il n'a jamais lu. Le nombre de références ne doit pas dépasser 25, sauf si l'article constitue une synthèse. Les références doivent être numérotées dans le texte et renvoyer à une bibliographie séparée, à la fin de l'article.

Pour les références aux revues, donner le nom de l'auteur, le titre de l'article, le nom de la revue, le numéro du volume, la première page de l'article et l'année de publication:

- 1 Tanner, D. M. Le traitement d'urgence des lésions maxillo-faciales. *J Ass Dent Canad* 33:31, 1967.

Pour les références aux livres, indiquer le nom de l'auteur, le titre du livre, la ville et le nom de l'éditeur, l'année de publication:

- 2 Nally, J. N. Matériaux et alliages dentaires. Paris, Julien Prélat, 1964.

Illustrations

Les illustrations au trait et en simili-gravure doivent être de bonne qualité pour permettre une reproduction satisfaisante.

Photographies — Les photographies demandent un certain soin. On ne doit pas les plier, ni les agraffer; ne pas effectuer de montage ni couper les bords. Elles doivent être nettes, sur papier glacé, en noir et blanc et de préférence ne pas dépasser 8 x 10 pouces. Les photos en couleur ne peuvent être publiées qu'aux frais de l'auteur. Le grossissement des microphotographies doit toujours être indiqué. Les photographies ne doivent porter aucune mention écrite ou dactylographiée. Au verso de chaque photo, inscrire légèrement au crayon et indiquer le haut. Si une figure contient deux photos ou plus, ne pas effectuer de montage; ins-

crire légèrement au crayon, au verso de chaque photo, le numéro de figure et la lettre d'ordre (Figure 1a, etc.) en indiquant aussi le haut. Les patients ne doivent pas être reconnaissables à moins qu'ils n'aient fourni une autorisation écrite de publication.

Dessins — Les schémas, graphiques, courbes et diagrammes ainsi que le lettrage doivent être tracés à l'encre de chine. Le lettrage doit être assez grand pour demeurer lisible après réduction du dessin à la largeur d'une colonne (dessins simples et petits) ou d'une page (dessins plus complexes et plus grands).

Légendes — Les légendes doivent être séparées des illustrations et du texte, et groupées sur une feuille distincte.

Tableaux

Chaque tableau doit être dactylographié sur une feuille séparée, numéroté par ordre d'insertion et adaptable à la largeur d'une colonne ou d'une page. Les notes au bas du tableau et son titre doivent figurer sur la même page que le tableau. Ne pas tracer les lignes verticales du tableau.

Autorisations et renonciations

Elles devraient accompagner le manuscrit soumis pour publication. L'autorisation de l'auteur et de l'éditeur sont nécessaires pour utiliser directement tout document (textes, photographies, dessins) protégé par droits d'auteurs. Il est d'usage de citer jusqu'à cent mots de prose sans autorisation, à condition que le passage cité ne constitue pas l'essentiel de l'oeuvre. Des renonciations doivent aussi être obtenues pour la publication de photographies de personnes, à moins que les visages ne soient masqués pour éviter l'identification. On peut demander au rédacteur des formules de renonciation.



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BUDGET RESTRAINTS DELAY DENTICARE IN ONTARIO

The Ontario Dental Association has emphasized that the provincial government's budget restraints, not a shortage of dentists, is the reason for the delay in putting a province-wide dental insurance program into effect. The statement was issued in response to remarks made by Ontario's Acting Health Minister Bette Stephenson during an address to the ODA Annual Spring Meeting held in Toronto.

Dr. R. F. Evans, new ODA president, said that Association members were disappointed that Dr. Stephenson blamed a shortage of dentists for holding up the introduction of denticare. He said Ontario dentists have co-operated with the government during recent years on studies of whether a denticare

program is necessary in the province, how much it would cost and how it should be implemented. Premier William Davis, addressing the 1975 ODA meeting, stated that the proposed children's denticare program developed by the Association was "sound and worthwhile", but felt that health cost restraints would veto the introduction of such a program in the foreseeable future.

Dr. Evans explained: "Since then we have witnessed hospital closings and other dramatic reminders of the effects of the restraint program. And yet, during this very period, the Acting Minister of Health puts the blame for not introducing a denticare program, which will cost at least \$180 million

over a five-year period, on the fact that this province is approximately 70 dentists short of servicing every geographical area of Ontario."

He said the dental profession is "actively working" to overcome this shortage and will likely announce plans for servicing remote areas later this year.

The ODA president stated that "the most troubling aspect" of Dr. Stephenson's remarks was that she ignored "the real, practical impediment to establishing a denticare program at this time — the general lack of understanding and knowledge about preventive oral hygiene techniques among the people of Ontario."

Until people are taught how to take better care of their teeth, any denticare program will be "a costly and futile exercise" to restore damage done and constantly redone by disease uncontrolled between dental appointments.

British experience clearly documents that a restorative denticare program, without a preceding educational program, does not improve the oral health of the population, Dr. Evans told delegates in his presidential speech.

On the subject of an educational program, Dr. Evans and John C. Gillies, ODA executive director, said that the Association had previously discussed a government-sponsored comprehensive dental educational program with Health Minister Frank Miller who had been very enthusiastic about it.

CDA Fluoridation Officer

When the Canadian Dental Association moves to its new Ottawa headquarters next month, Lloyd Bowen, CDA's Fluoridation Officer, will remain in Toronto in an office provided by the Ontario Dental Association.

Mr. Bowen is recognized as Canada's foremost authority on the status of fluoridation in this country. Prior to joining the CDA staff in 1969, he served as executive secretary of the Health League of Canada's National Fluoridation Committee. He is currently honorary executive secretary of this same committee.

Dentists wishing to obtain information on the subject of fluoridation are advised to contact Mr. Bowen at 234 St. George St., Toronto, M5R 2P2.

NEW PRESIDENT OF CANADIAN ACADEMY OF ORAL PATHOLOGY

J. P. Sapp, Associate Professor of Pathology at the University of Western Ontario, has been elected president of the Canadian Academy of Oral Pathology/L'academie Canadienne de Pathologie Buccale.

Other members of the executive for the forthcoming year are: H. M. Dick of Edmonton, president-elect; J. R. Trott of Winnipeg, past-president; J. D. Spouge of Vancouver, vice-

president; B. B. Harsanyi of Halifax and T. P. McCrory of Montreal, members.

The election of officers took place during the 10th annual meeting of the Academy held in association with the American Academy of Oral Pathology in Atlanta, Georgia, in April. The 1977 meeting will again be held in conjunction with the American Academy in Portland, Oregon, in May.

STUDY SET OF SLIDES ON ODONTOGENIC TUMORS AND RELATED LESIONS

David G. Gardner, Professor and Chairman of the Division of Oral Pathology, University of Western Ontario, has been requested to prepare a study set of microscopic slides of odontogenic tumors and related lesions. The request came from the Canadian Tumor Reference Centre of the National Cancer Institute of Canada.

Once completed, the study set and its accompanying brochure will be

distributed to departments of pathology throughout Canada, as well as to other teaching institutions. The project will also involve the two other full time members of Western's Department of Oral Pathology, Dr. J. Philip Sapp and Dr. George P. Wysocki.

Dr. Gardner has been a member of the consultant panel of the Canadian Tumor Reference Centre, dealing with oral lesions, since 1967.

AUSTRALIAN DENTAL ASSOCIATION APPOINTS NEW FEDERAL SECRETARY

Colin H. Wall is the new Federal Secretary of the Australian Dental Association. A 1954 graduate of Sydney University, Dr. Wall is a Fellow of the International College of Dentists.

For the past eight years, Dr. Wall was Director of Dental Services for the Australian Department of Health in the Northern Territory. In 1973, he was

appointed to the Australian Dental Services Advisory Council where he served as chairman of the Equipment, Building and Materials Committee.

As the senior dental member of the Northern Territory Dental Board, he represented the Board at all major conferences and seminars.

AMERICAN ACADEMY OF IMPLANT DENTISTRY ANNOUNCES RESEARCH GRANTS

The American Academy of Implant Dentistry has announced it has \$3000 available for research grant awards. A maximum of \$1000 will be made available for any one project.

The grant awards are to be used for clinical and/or laboratory research related to dental implantology. Funds may be used for: preparation of histological slides, photographic documentation, direct purchase of

laboratory animals, and microscope time. The funds cannot be used for salary, travel, permanent equipment or publication costs.

The deadline for receipt of completed applications is August 1, 1976. Application forms may be obtained by writing to Mr. John Winiewicz, Executive Director, American Academy of Implant Dentistry, 469 Washington St., Abington, Massachusetts, 02351.

Academy of Dentistry for the Handicapped

Leonard B. Smith, a Calgary pedodontist, has been elected to the executive board of the Academy of Dentistry for the Handicapped.

The U.S.-based Academy has reported a steady increase in Canadian membership during the past two years and Dr. Smith is actively trying to build up further Canadian support so that the Board can recommend that the annual scientific meeting be held in Canada in the near future.

General information regarding the Academy may be obtained from: Mrs. Lucile G. Dill, ADH Executive Secretary, 1240 East Main Street, Springfield, Ohio, 45503.

Dentists interested in setting up a Canadian Chapter of the Academy may write directly to Dr. Smith, 805 Mission Medical Centre, 2303 — 4 Street S.W., Calgary, Alberta T2S 1X3.

Quebec oral surgeons elect new executive

The Association of Oral Surgeons of Quebec recently announced its new executive for the 1976-77 term of office.

Members are: Yves Boivin, president; Pierre Suprenant, vice-president; Eric P. Millar, past-president; Huan G. Phan, secretary; Louis Trudel, treasurer; Léon Daigle, Edward Cree, Guy Maranda and Louis Trudel, counselors.

Executive council for Quebec Dental Society

The Quebec Dental Society recently announced its new executive council for the 1976-77 term of office. Members are: Jean Laporte, past-president; Denis Veillette, president; Armando Simard, vice-president; Clément Caron, secretary; Jean Bussiére, treasurer; Victor Goodyer, Denis Laverdière, Jean-Luc Rivest, Jean-Claude Bellerose, and Bernard Bélanger, administrators.

QUEBEC DENTISTS CONCERNED OVER GOVERNMENT INTERFERENCE IN FEE STRUCTURING

Dentists, along with a number of other professional groups in Quebec, are becoming increasingly concerned over the prospect of government interference in the process of structuring professional fee schedules.

Under the terms of article 12 of the Quebec Code on Professions, the provincial Professions Board plans to suggest the establishment of a fee schedule for professional groups whose fee structure is not already fixed by collective agreement or determined by law. Before drafting this proposed legislation, which would have to be approved by the lieutenant-governor in council, the Professions Board has asked for the views of the professional organizations involved.

The controversy over government

regulation of professional fees began last year following publication of the results of a study made by the University of Montreal's Centre for Research on Economic Development entitled "Setting the fees for professionals in private practice." The Professions Board invited professional organizations in the province to review the study and submit their views on the question of government responsibility in fee structuring.

The reports submitted by the various professions are the subject of discussion for public hearings which began in February. These reports outline the advantages and disadvantages to the consumer of government control over professional fees as opposed to fee competition. The major objection to this prop-

osed government control given by the professional corporations is that when fees are set in advance the quality of service may deteriorate. The Professions Board maintains that this possibility could be prevented by the establishment of a Grievance and Discipline Committee to serve the public interest.

Traditionally, competence and a good reputation served as the basis on which professionals set their fees. This may all change, however, if, as a result of these public hearings, the government decides to take over responsibility for establishing fees for dentists, lawyers and all other professional groups throughout the province.

Gérard de Montigny, DDS, MScD

The Canadian Dental Association invites applications for the position of

EDITOR

The Canadian Dental Association, headquartered in Ottawa, requires a combination editor and public information officer.

As editor of the Association's professional monthly journal, the applicant must possess full knowledge of editing, production and layout as well as the necessary writing skills. Previous experience with a magazine is an asset.

The Editor will also be required to have public relations skills including knowledge of the media and an ability to handle both public and professional information enquiries.

Full range of benefits including dental plan. Salary commensurate with experience.

Apply to: Acting Executive Director
Canadian Dental Association
234 St. George St.
Toronto M5R 2P2
Telephone (416) 962-3261

American Society for Preventive Dentistry

Berril Garshowitz, a Toronto dentist, has been installed as a member of the National Board of Directors of the American Society for Preventive Dentistry.

Dr. Garshowitz, who has operated a general practice in Toronto since 1957, has served as an executive of the Ontario Chapter of ASPD since its inception in 1972 and is president-elect of the Chapter for 1977.

The American Society for Preventive Dentistry is an organization concerned with the oral health of the public and is engaged in extensive programs of education designed to create public awareness that proper personal daily care of teeth not only preserves the teeth, but actually reduces dental disease and, in many cases, other types of disease. Membership in the Society is made up of individuals in the dental and public health professions, along with other individuals interested in the prevention of oral disease.



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take one or two
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INDICATIONS: For relief of mild to moderate pain, fever and inflammation as in influenza, common cold, low back and neck pain, headache, trauma, following dental and surgical procedures.

DOSAGE: Adults — 1 or 2 tablets one to three times daily; Children's dosage, when recommended by a physician: 10 to 14 years, one tablet, one to three times daily; 5 to 10 years, one-half tablet, one to three times daily.

CONTRAINDICATIONS: Gastrointestinal ulceration and sensitivity to any of the components.

WARNINGS: Salicylates increase the effects of anticoagulants. Caution is necessary when salicylates and anticoagulants are prescribed concurrently. Also, salicylates may depress the concentration of prothrombin in the plasma. Large doses of salicylates may affect insulin requirements of diabetics. Salicylates may potentiate sulfonylurea hypoglycemic agents. Analgesic abuse (excessive and prolonged therapy) has been associated with nephropathy. TO AVOID

ACCIDENTAL POISONING ACETYSALICYLIC ACID PREPARATIONS MUST BE KEPT WELL OUT OF REACH OF CHILDREN.

PRECAUTIONS: Give with caution to patients with asthma, other allergic conditions, bleeding tendencies, or hypoprothrombinemia. Salicylates can produce changes in thyroid function tests.

Observe care in use of codeine, although tolerance and addiction are rare. Give codeine with caution to patients with severe respiratory depression. Its depressant effect may be enhanced by concurrent administration of sedatives and tranquilizers.

ADVERSE REACTIONS: Acetylsalicylic acid: *Gastrointestinal:* dyspepsia, heartburn, nausea, vomiting, diarrhea, gastrointestinal ulceration and bleeding. *Ear reactions:* tinnitus, hearing loss. *Hematologic:* anemia, leukopenia, thrombocytopenia, purpura. *Dermatologic and Hypersensitivity:* urticaria, angioedema, pruritus, various skin eruptions, asthma and anaphylaxis. *Miscellaneous:* mental confusion, drowsiness, sweating and thirst.

Codeine: Average or large doses may cause various gastrointestinal symptoms such as nausea, vomiting and constipation.

Caffeine: May cause nausea, nervousness, insomnia, headache, vomiting, palpitation, vertigo, muscle tremor, sensory disturbances, excessive diuresis in sensitive patients. Large doses may cause gastric ulceration.

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FLUORIDE-IMPREGNATED FLOSS COULD REDUCE TOOTH DECAY

Tooth decay occurring between teeth surfaces might be reduced significantly if people could floss frequently with fluoride-impregnated dental floss, according to two University of Iowa researchers. Dr. Richard Chaet, a fellow in pedodontics, and Dr. Stephen Wei, a professor of pedodontics, delivered a report on their research on this subject to the recent general session of the International Association for Dental Research in Miami, Florida.

The researchers explained that dental floss is the only effective method of ridding between-teeth surfaces of decay-causing bacteria. They reported that teeth treated with a fluoride-impregnated dental floss showed a fluoride uptake of about three times the normal amount of fluoride in the outermost layer of enamel.

The fluoride-impregnated dental floss was made by soaking non-waxed dental floss in a saturated solution of acidified sodium fluoride for 24 hours and then allowing the floss to dry for 24 hours.

The researchers placed 30 extracted human molar teeth in acrylic blocks for stabilization during the dental flossing procedure. The contact surfaces of each

tooth were flossed with either fluoride-impregnated dental floss or non-treated dental floss for a total time of four minutes. The teeth were then washed for 90 seconds in a calcifying solution to simulate the normal oral environment.

The surfaces treated with the fluoride-impregnated dental floss showed a fluoride concentration of 13,910 parts per million in the outer enamel layer, compared to about 4,330 parts per million in the control group, the researchers reported.

The amount of fluoride on the floss was slightly greater than that found in commercial fluoride toothpastes.

Dr. Wei cautioned that this study is believed to be the first of its kind, and much more exploration of the optimal fluoride dosage and clinical trials are necessary.

Dr. Chaet and Dr. Wei also reported results of a preliminary clinical investigation studying the effects of fluoride-impregnated dental floss on *Streptococcus mutans*, one of the main organisms responsible for between-teeth surface decay. The investigation showed a significant reduction of between-teeth bacteria sites in humans using the specially-treated floss for 11 days.

Heads up dental hygiene at University of Alberta

Joan Conklin recently joined the staff of the University of Alberta as head of the school of dental hygiene. She was formerly education co-ordinator for the College of Dental Surgeons of British Columbia.

Miss Conklin received her bachelor's and master's degrees in dental hygiene from Columbia University. She was a practising dental hygienist for some time and, for two years, taught at the University of Alberta's school of dental hygiene. She was then appointed head of the dental hygiene department at Westbrook College in Portland, Maine, and was also director of Portland's Division of Dental Health Education.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on May 31, 1976:

<i>Guaranteed Fund</i>	\$12.624;
<i>Fixed Income Fund</i>	\$16.900;
<i>Common Stock Fund</i>	\$29.057.

Total assets (market value) of the plan were \$24,154,656.38.

The following portfolio purchases and sales occurred during the preceding month:

bought, 100 shares Bell Canada, 2,000 shares Moore Corp., \$100,000 B.C. Telephone note, \$200,000 Imperial Oil note. Sold, \$100,000 Barclays Canada note, \$500,000 Noranda Mines note, 3,000 shares Hudsons Bay, \$100,000 Aluminum Co. note, \$500,000 General Motors note.

For further information write to: CDA-sponsored Pension and Insurance Plans, 14 Madison Ave., Toronto, Ont. M5R 2S1.

DEATHS

Clark, Wilfrid Daniel. 77. Stoney Creek, Ont. Royal College of Dental Surgeons of Ontario, 1921. 20-5-76. Survived by Winnifred (wife); Brian and Paul (sons); and Dr. Beverley Burgess (daughter).

Crowhurst, Sidney Edward. 66. Vancouver. Northwestern University, 1932. 1-5-76. Survived by Mary-Louise (daughter).

Keenan, M. Vincent. 70. Sault Ste. Marie. University of Toronto, 1929. 31-5-76. Survived by Margaret (wife); Michael, Breen and Kerry (sons); Mrs. Mary O'Hagan and Mrs. Sharon Hayes (daughters).

Kennedy, Charles Judd. 53. Ingersoll, Ont. University of Toronto, 1951. 1-6-76. Survived by Joyce (wife), Stewart (son), and Patricia (daughter).

Miles, Rollie Lee. 86. Birtle, Man. Royal College of Dental Surgeons of Ontario, 1923. 20-4-76. Survived by Gurtrude (wife) and Mrs. Frances Lundeen (daughter).

Montgomery, Garnet Elliott H. 73. Qualicum Beach, B.C. North Pacific College 1928. 15-5-76.

Wroblewski, Vincent Peter Alexander. 29. Toronto. University of Toronto, 1971. 31-5-76. Survived by Dianne (wife).

In memoriam

Vincent Keenan

It is with sadness that the Canadian Dental Association announces the death of Michael Vincent Joseph Keenan of Sault Ste. Marie, Ontario, on May 31, 1976, at the age of 70.

A 1929 dental graduate of the University of Toronto, Dr. Keenan practised in Sudbury for 38 years until his retirement in 1967 when he moved to Sault Ste. Marie.

Dr. Keenan had a long and distinguished career of service to his profession. In 1955, he was named Ontario's representative to the Canadian Dental Association's Board of Governors and was elected president of the CDA in 1962. He was a past president of the Northern Ontario Dental Association and served as chairman of the public dental health committee of the Ontario Dental Association. He had also served as chairman of the board of the Royal College of Dental Surgeons of Ontario.

In 1968, he was awarded an honorary life membership by the Sudbury and District Dental Society, the first such award to be made by the organization. Dr. Keenan was the first dentist from Northern Ontario to receive admission to the International College of Dentists.

Wilfrid Daniel Clark

It is with regret that the Canadian Dental Association announces the death of Wilfrid Daniel Clark of Stoney Creek, Ontario, on May 20, 1976, at the age of 77.

A native of Hamilton, Ontario, Dr. Clark graduated from the Royal College of Dental Surgeons in 1921 and took postgraduate studies at Northwestern University. He then established a practice in Hamilton where he remained until 1963 when he relocated in Stoney Creek. He was in active practice until his death, serving his profession for a total of 55 years.

Dr. Clark gained an international

reputation and was very much in demand as a clinician throughout Canada and the United States. He was a past president and a life member of the Hamilton Academy of Dentistry. He was a charter member of the Canadian Prosthodontic Association and served

as its president in 1965. Dr. Clark was a fellow of the American College of Dentists and of the American Prosthodontic Association. He was also a member of the Carl Boucher Society and a charter fellow of the Royal College of Dentists of Canada.

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Dentistry for handicapped children

Dentistry for the handicapped is an umbrella term and encompasses a wide variety of conditions and special clinical problems. The following articles are only a cross-section of the subjects discussed and presented during the Hospital for Sick Children's centennial postgraduate program in dentistry for the handicapped, presented under the direction of R. B. Ross, Chief of Dentistry and A. F. Dungy, Head — Division of Paedodontics.

Although this short course was a first experience for the Hospital, the enthusiasm among the participants made the Faculty feel some of this experience should be shared with a wider Canadian dental audience. These articles, edited by A. F. Dungy, are not meant to represent a definitive statement on dentistry for the handicapped but may spark more interest in this rewarding and currently underserved area of dental care.



A. F. Dungy, Head — Division of Paedodontics, Hospital for Sick Children, Toronto and consultant, Ontario Crippled Children's Centre.

Keynote address:

HISTORY OF DENTISTRY FOR THE HANDICAPPED: PAST, PRESENT AND FUTURE

S. Kamen, DDS
Stony Brook, New York

The niceties of classification being a phenomenon of the last quarter century, it should not come as a surprise that mental illness until very recently did not distinguish between mental retardation, emotional disturbance and psychotic behaviour. Early references to abnormalities of the mind are found as far back as 3000 BC in Babylonian history. Lest we think that transcendental meditation is a new phenomenon, we find that temple sleep and relaxation by concentration were already Egyptian methods of treatment, and the Bible gives us numerous examples of interpretation of dreams, as well as an understanding of mental illness. From these sources we learn that the first hospital for "lunatics" was found about 490 BC in Jerusalem.

The first attempts to replace magical treatment by rational explanation is attributed to the Greeks, and Hippocratic medicine is considered one of the scientific roots of modern psychiatry. In 400 BC Hippocrates verified brain damage in epileptics by cracking open and examining an epileptic

cadaver's skull. The Roman physician Celsus, circa 30 AD, described the use of the rack, the whip, and dipping into cold water almost two thousand years before B.F. Skinner's theories of behaviour modification.

The first medical writer to devote a literary work to mental deficiency was the Swiss philosopher-physician Paracelsus. In his treatise, *De Generatione Stultorum* ("On the Begetting of Fools"), written about 1530, he poses the genetic problem, asking how it is possible for wise men to beget fools, and fools to beget wise men. Incidentally, Paracelsus also wrote a treatise with a clear description of cretinism, in which he noted its association with endemic goitre, and described in great detail the craniofacial characteristics. A contemporary of Paracelsus, the Swiss physician Felix Platter, also provided an excellent description of cretinism, including its oral manifestations, and in 1614 described mental deficiency in terms that are valid to this day.

We hear a good deal these days about "normalization." Phillipe Pinel, a French psychiatrist, performed what was perhaps the first example of "normalization" when in 1793, to great publicity, he released his first mental patients at a Paris asylum from their chains, repeating this performance two years later at the women's prison of Salpêtrière. He substituted for chains a sympathetic understanding of their potential for intellectual improvement and creative productivity.

Pinel's concepts were not lost on the young French educator and physician, Jean Marc Itard (1744-1838), when at the end of the 18th century a "wild boy," the so-called savage of Aveyron, was found wandering in the woods of France. Recently, a beautiful film based on this incident described the attempts of Itard to provide this mentally defective boy with sensory and motor training. In actual fact, the boy never did learn to speak, but Itard proved to the world that a profoundly retarded individual could be improved and raised to a much higher level of function. It is interesting to note that the approaches of Itard and his disciple, Edouard Sequin (1812-1880), were subsequently introduced into the special education of mentally defective and later to normal children in Italy by Maria Montessori. Professor Sequin came to the United States in 1850, opened a day school in New York City, and served as a consultant to several residential schools, one of them in Syracuse, N.Y. He was the first president of the organization which was the precursor of the American Association of Mental Deficiency.

More recently, a movement for the advancement of the developmentally disabled child began in the mid 1940's, following World War II. This movement has been characterized thus far by three major trends. From the middle 40's to the middle 50's was the decade of the cerebral palsy movement; this despite the fact that cerebral palsy had been identified, defined and classified by Little in the 1870's.

In 1944, the National Easter Seal Society formed a Cerebral Palsy Division, and two years later a parents' advisory council, including many prominent physicians. The American Academy for Cerebral Palsy was founded by these professionals in 1947.

The second trend, the mental retardation movement on this continent, actually began in the late 19th Century, with the formation of the American Association on Mental Deficiency in 1876. Most of the activity for many years centred around professional interest, and there was a voluminous outpouring of literary contributions by paediatricians, psychiatrists and psychologists. It was only with the organization in 1950 of the National Association for Retarded Children, later to become the Association for the Help of Retarded Children, that public acceptance and recognition brought this movement into prominence. The popularity of the mental retardation movement in the decade of the 60's was due in large part to the personal interest of the Kennedy family in the search for remediation and rehabilitation. With the possible exception of cancer and heart disease, American federal financial support of mental health

activities until recently has probably been more substantial than in any other area of disease.

The third movement now emerging in the decade of the 70's, is that for children with learning disabilities. This entity derived its origin from sophisticated investigations of the perceptual, emotional, intellectual, kinaesthetic and conceptual disorders of children with cerebral palsy and mental retardation. The early pioneers in this field were Dr. Samuel Orton who organized studies on the nature of dyslexia in the 1920's and 1930's, and Drs. Aldred Strauss and Laura Lehtiner, whose seminal work, *The Psychopathology and Education of the Brain Injured Child*, appeared in 1947. Early organizations identified with this movement were the Orton Society, the Council for Exceptional Children and the Association for Children with Learning Disabilities.

The common denominator of all of these movements was the union of professionals, parents and friends to develop programs of help for the children in each category. Professional research monographs were followed by technical conferences and soon the general public, including parents, teachers and friends became involved and began to exert political, social and economic pressures for programs of help. Ultimately federal, state and local support for these activities were forthcoming.

The profession of dentistry unfortunately lagged behind allied disciplines in the total rehabilitation effort. A survey of the literature before the 1950's reveals a dearth of articles dealing with dental aspects of the handicapped child. American dentistry in the first half of the 20th century was preoccupied with the development of technical skills, with little thought of expanding its services to the handicapped population. Paediatricians, the primary physicians involved with neurologic, metabolic and other disorders, were not particularly cognizant of the significance of dental health in systemic disease in general, and considered it of minor importance in relation to the total handicap of the neurologically impaired child. At that time, before the advent of antibiotics and other life-saving measures, many of these children were regarded as short lived, and dental care was considered an impractical indulgence. Parents, overwhelmed by the vast social problems, economic strains, and chronic disabilities of the children, gave dental health a low priority, and in the main sought emergency care only. Faced with professional disinterest and unconcerned parents, it is not surprising that dentistry for the handicapped until the 1950's was hardly mentioned in the dental school curriculum, and was rarely considered a subject for postgraduate education. It was the post-war movement for the cerebral palsied starting in the late 40's which saw the emergence of handicapped children's dentistry as an organized sub-specialty of the profession. Paralleling the refinement of medical, educational and vocational rehabilitation of the palsied were stirrings of interest in the oral rehabilitation of these "forgotten children" of dentistry.

Three factors which influenced the evolution of oral care as an essential aspect in the goal of total rehabilitation of the

handicapped patient were: (1) a realization that dental disease adds another deficit to an already multi-handicapped child; (2) increasing knowledge of the oro-facial manifestations in neurological and chronic disorders; and (3) recognition of the importance of dental health in augmenting the potential of the patient with the handicapping disorders, in terms of functional efficiency and enhancement of self-esteem. It was for these reasons that advocacy movements for the handicapped began to insist that the right to oral health be added to the demand for equal opportunities for educational, vocational and physical rehabilitation.

In 1948, a small group of men and women formed the nexus of what was eventually to be the Dental Guidance Council for Cerebral Palsy of New York City. Subsequently, in 1950, a graduate fellowship program was established at Columbia University School of Dental and Oral Surgery in conjunction with the opening of the first dental clinic for the cerebral palsied. Throughout the years the Dental Guidance Council for Cerebral Palsy, through its conferences, lectures, exhibits, scientific literature and other activities has played a consistent role in expanding concepts of dentistry for the handicapped. Through its efforts, too, a seminar last spring resulted in the organization of the first Society of Dentistry for the Handicapped in Venezuela, an event of great historical importance on the South American continent.

At about the same time, postgraduate courses in dentistry for the handicapped began to appear in the curricula of various dental schools, with that of Dr. Manuel Album at the University of Pennsylvania probably the first and most prominent. The first hospital-based postgraduate interdisciplinary training program in mental retardation was organized by Flower Fifth Avenue Hospital in New York City in 1956, with one dentist on the faculty and two participating as students. This institute was geared primarily to physicians and social workers. It is sad to report that in the 50's and 60's less than a dozen dental schools offered post-doctoral training of any significance in the provision of dental care for special patients. The picture of neglect on the undergraduate level as well as in continuing education in this period is one which tarnishes the record of our teaching institutions.

Fortunately the picture in undergraduate training has improved radically with the decision last year of a major United States philanthropic agency, the Robert Wood Johnson Foundation, to contribute \$4.7 million to eleven dental schools to initiate programs in dentistry for the handicapped. These programs are now well under way, and should sensitize hundreds and perhaps thousands of future dentists to the special needs and problems of delivering dental services to this segment of the population.

The most prestigious organization in the United States concerned with dental care for the special patient is the Academy of Dentistry for the Handicapped. Founded in the early 1950's, its influence goes far beyond its rather elite membership of some 400 dentists, for it participates in the deliberations of such important bodies as the President's

Committee on Mental Retardation, the National Association for Retarded Children, United Cerebral Palsy, the National Easter Seals Society and other organizations for the handicapped. The Academy took the initiative in convening the First International Congress on Dentistry for the Handicapped in Atlantic City in November 1971, and played a prominent role in organizing the Second International Congress in Amsterdam during April 1974. A major contribution to the advancement of dentistry for the handicapped is the *Journal of the Academy of Dentistry for the Handicapped*, which made its appearance early in 1975. This publication offers a forum for scientific presentations and an exchange of ideas and information.

An unusual training program in mental retardation and related developmental disabilities has been conducted at the Long Island Jewish-Hillside Medical Centre, New Hyde Park, NY, under the auspices of the US Department of Health, Education and Welfare. Initiated in July 1966, the establishment of this hospital-based postgraduate training program was predicated on the experience of a decade of dental care for the handicapped in the clinics and operating rooms of this medical centre. The program has trained more than 500 dentists and dental hygienists from some 27 states and seven foreign countries in the use of sophisticated techniques for the management and treatment of patients with a wide range of neurological and developmental impairments.

There are at present three basic systems for the delivery of dental care to the handicapped: (1) private practice, (2) dental schools and hospital clinics, and (3) clinics in federal, state and local proprietary facilities for the disabled.

The problem in providing care in the private sector is twofold: (1) inadequate training and availability of professional manpower; and (2) financial considerations.

These problems are summarized in a statement by Mrs. Helen Kaplan, the executive director of one of the largest and best run day centres for the retarded in our country, who recently described dentistry as "one of the most important and necessary programs to the general wellbeing of the mentally retarded. In fact, I would personally place it above the medical program in the order of priority. I say this in light of 25 years of experience in the field of mental retardation, which demonstrated dental care as a major need. As you know, most dentists do not want to take the severely or profoundly retarded as patients, and those who do have fee scales which are well beyond the means of the average family, with the consequence that we have seen horrendous dental deterioration in our children." In a survey of 2,000 dentists conducted in New York City in the summer of 1968, over 60 per cent said that they did not feel sufficiently competent and would not accept handicapped patients, and of these 51 per cent stated that they would not take a one day tuition-free course intended to help them treat such patients. The experience in this city is not unique and could probably be duplicated in most areas of the United States and Canada. It should be noted that most of the dentists who

refused to treat blamed inadequate undergraduate training for their unwillingness to accept these patients.

Of hospital and dental school clinics the story is much the same — too few and too far between. Most school clinics do not accept handicapped patients unless they have special patient clinics combined with associated postgraduate programs. Until the Robert Wood Johnson program accomplishes its objectives, a paedodontic program cannot substantially reduce the backlog of unmet dental needs of the handicapped. Where good programs exist, they quickly become an oasis in the desert. One such clinic in the mid-west attracts its patients from a 200 mile radius. And the current trend of de-institutionalization will undoubtedly inject another dimension of need into the private sector as well as community clinics.

Even well-run hospital clinics as presently constituted cannot cope with the needs for treatment. Consider the enormity of the problem. The US National Institute of Neurological Diseases and Blindness estimates that one out of every 16 children is born with congenital defects, such as blindness, cleft palate, mental retardation or cerebral palsy. It has been further estimated that for every practising dentist, there are 200 chronically ill patients who need dental care and that there are 1.7 million long-term chronically ill or handicapped persons in institutions of one kind or another. Given these statistics, if all the hospital dental services of our countries were suddenly to convert to a policy of limiting treatment to the handicapped, they would still be woefully inadequate to meet the demand.

The third avenue for the delivery of dental care to the handicapped is in the clinics of federal, state and local institutions. With few exceptions, these facilities have suffered from lack of modern equipment, inadequate staffing and insufficient interdisciplinary support. Our colleagues who labour under such adverse conditions are truly the unsung heroes of dentistry.

Viewed from the historical perspective, a recent landmark decision by a US District Court in the State of Alabama holds forth great promise for improving the oral status of institutionalized residents in the United States. In 1972, in a formal opinion and decree in the case of Wyatt (a mentally retarded resident of the Partlow State School and Hospital) versus Stickney (Dr. Stonewall B. Stickney, Commissioner of Mental Health and the State of Alabama Mental Health Officer), this court spelled out in explicit detail the numbers of qualified professional staff it deemed necessary to administer adequate habilitation. It recommended that the institute should provide one full-time dentist for every 200 residents; but recognizing the shortage of qualified professional personnel, it further ruled that the hospital, in lieu of employing full-time dentists, could contract outside the institution for dental care. In this event it mandated that the dental services provided must include (1) complete dental examinations and appropriate corrective dental treatment for each resident each six months, and (2) a dentist on call 24 hours per day for emergency treatment. This is the first time that a judicial arm of government,

responding to powerful pressures of advocacy for the rights of education and health for the handicapped, has included dentistry as an essential aspect of habilitation. It is indeed an historic decision and precedent for our profession.

With much trepidation, I shall now venture to speculate on the future of dentistry for the handicapped. Grand visions of the future come easier and usually fall harder from politicians and economists, but systematic strategies for achieving the goal of adequate dental care for all the disabled require a hard look at educational trends, refinements in the technology of pain control, and changing concepts in systems for the delivery of care.

Dr. J. M. Coady, assistant executive director for education and hospitals, of the American Dental Association, stated in a recent article that "sophisticated teaching methods in dental schools will reduce, for some disciplines, the clock hour time needed to convey appropriate knowledge, thus freeing time in the curriculum to cover a broader scope and depth of subject matter. Dental students will receive instruction in subject matter that was at one time confined to only advanced specialty students." With the impetus derived from the Robert Wood Johnson Foundation grant it is not unreasonable to predict that within the foreseeable future dental training for the special patient will be incorporated in the curricula of more and more schools on the continent, thus gradually meeting the need for adequately trained professional manpower.

Another hopeful development on the education scene is the increasing involvement of dental auxiliaries in the problems of oral care of the handicapped. With the greater emphasis on preventive dentistry, para-dental personnel can indeed prove a powerful ally in ameliorating the ravages of dental disease in this patient population. The application of fluoride therapy, dietary counselling and plaque control, as well as the expanded functions of these auxiliaries, offers the greatest promise in the fight against dental disease in the handicapped. Of one thing we may be sure, if the current policy of emptying the huge warehouses of the mentally ill and retarded continues, we shall have to enlist all the help we can find to provide care to these patients in the communities. It is to be hoped that the schools of dental hygiene will develop programs with the same objectives as the Robert Wood Johnson Foundation, both on the undergraduate and graduate level.

Great strides have been taken in the past quarter century in harnessing technological advances for the treatment of the handicapped. When the slogan "no handicapped child need be denied the benefits of dental care" was raised 20 years ago, the only alternative to routine clinical management was general anaesthesia. With recent developments in pharmacology, dentistry has acquired a whole new armamentarium of chemotherapeutic adjuncts for the management of the patient with behavioural disorders, including tranquilizers, anticonvulsants, intravenous analgesics, dissociative drugs, and general anaesthetic agents. In the years ahead, techniques such as behaviour modification and bio-feedback may enable the dentist to treat many physically

and mentally handicapped patients without the use of sedating agents. It is safe to predict that the science of pain control will continue to occupy the time and efforts of dentists who have to cope with the sometimes bizarre and inappropriate behaviour of neurologically and psychologically impaired patients.

The future of dentistry for the handicapped on this continent cannot be divorced from the mainstream of trends in general public health. For years now we have predicted the advent of a national health insurance program in the United States in response to growing demands by the public for subsidized health care. I think we shall certainly see this come to fruition within the next decade. It is reasonable to expect that these programs of social medicine and dentistry will include oral health care for the handicapped.

Finally, I would like to suggest that in view of the current trends of normalization and deinstitutionalization there is an urgent necessity to develop and expand hospital based dental programs for those handicapped who are returned to the community. This is all to the good, for the hospital dental clinic, in my opinion, is the ideal environment for providing services to the developmentally disabled, chronically ill and sick aged patient. Such hospital centres have special facilities for diagnosis, evaluation, psychological management, pharmacological management and dentistry under intravenous sedation or general anaesthesia, if necessary. Above all, the hospital centre provides the interdisciplinary

team which is absolutely essential for treatment of the patient with neuromuscular dysfunctions, metabolic disorders, haematological disease and other chronic disabilities.

In conclusion, I firmly believe that dentistry for all the handicapped is an idea whose time has come. True, it has been "a late bloomer" in the garden of life for the handicapped, but with the participation of professionals such as yourselves, it can and will take root. The magnitude of the problem is large, the challenge formidable, and the rewards inestimable.

This article is a slightly abridged version of the keynote address delivered at a seminar on paediatric dentistry for children with handicapping disorders, organized by the Hospital for Sick Children, Toronto, October 8-10, 1975.

Dr. Kamen is attending dentist in charge of paediatric dentistry, Long Island Jewish-Hillside Medical Centre, New Hyde Park, NY, and associate professor of dental health, School of Dental Medicine, State University of New York at Stony Brook, NY.

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PREVENTIVE DENTISTRY FOR HANDICAPPED CHILDREN

J. A. Hargreaves, MChD, LDS
Toronto

Dental care for children with medical and physical handicaps or mental retardation has received a good deal of attention during the past few years. These special children, however, are still difficult to account for as some live in institutions, some live in small home care units and some live in their own homes.¹

The need for good oral health is self-evident. For example, a child with Down's syndrome and associated cardiac anomalies (1 in 600 births have this syndrome and 20 per cent have cardiac anomalies, commonly a ventricular septal defect²), depending on where the child is placed in society, can miss routine dental care. This may permit the development of rampant dental caries with risk of bacterial endocarditis from loss of teeth and the making of a dental cripple for life if prosthetic replacement of missing teeth cannot be accepted by the child.

These children, therefore, need excellent preventive dental programs.

Preventive methods

Subject to the degree of handicap, most children's dental needs can be met in a dental office or hospital with additional preventive care being rendered in the home or institution (Table 1).

Water fluoridation — This procedure, so well documented now,³ should be further extended until it is available to all children. The teeth of handicapped children appear to receive the same protection from this source of fluoride as do those of normal children, about 60 per cent of reduction in dental caries at any given age.

Preventive routines in the dental office — These should be made available to all handicapped children (Table 2). Though some of the physically handicapped or those with severe mental retardation, may require special equipment, normal dental office equipment suffices for many children in this category.

General oral hygiene measures with adequate scaling and polishing can be provided by a dentist or dental auxiliary.

Topical application of fluoride will provide additional protection against dental caries. Acidulated phosphate-fluoride and sodium fluoride gels and solutions have also been found beneficial in both fluoridated and non-fluoridated communities.^{5,8}

Many stock trays are available commercially for application of fluoride gels. Custom trays are very helpful for children who have difficulty accepting the gels. Alternatively, painting the teeth with fluoride solutions may be more readily acceptable (2.7 per cent sodium fluoride concentration giving 1.23 per cent fluoride ion concentration with 0.1 Molar phosphate concentration at pH3). These applications should be given two or three times a year.

Topically applied and systemically ingested fluoride exerts its main effect on smooth tooth surfaces. Since pit and fissure surfaces are particularly subject to caries attack,⁹ pit and fissure sealants offer additional protection.¹⁰ Richardson et al¹¹ have shown good results with sealants in groups of handicapped children residing in an institution. Current work with autopolymerising resins is also encouraging.¹²⁻¹⁴

Many mentally retarded children are on continuous drug therapy and may be subject to gingival tissue overgrowth. Children with Down's syndrome may have considerable and severe gingivitis which progresses with age.^{15,16} Gingivectomy followed by strict oral hygiene can reduce the progression of this condition.

Orthodontic or prosthetic treatment should not be ruled out for these special children as many can accept this care and benefit substantially from it.

Prevention for handicapped children

Table 1

Dental Office (Hospital)		Home (Institution)	
Normal Routine	Special Equipment	Normal Routine	Special Equipment

Prevention routines in the dental surgery Table 2

General oral hygiene measures — Scaling and polishing	
Caries	— Plaque removal and fluoride application — Fissure sealing
Gingivitis	— Plaque removal and gingival surgery
Malocclusion	— Basic orthodontic care
Anomalies	— Denture or appliance construction
Trauma	— Preventive measures — Intraoral appliance Extraoral appliance
Feeding problems	— Appliance aids to prevent feeding difficulty

Preventive routine at home or institution Table 3

General oral hygiene measures — Toothbrushing and flossing	
Caries	— Custom trays for fluoride application — Fluoride dentifrice — Mouth rinsing
Gingivitis	— Routine observation for gingival changes
Malocclusion	— Strict control of appliance regulations
Appliances	— Correct cleaning procedures
Trauma	— Wearing of well-designed appliances, extraoral or intraoral
Diet	— Make sure of good eating routines and that child can eat food provided
At institutions	— Good daily supervision of dental procedures by nursing or orderly staff
At home	— Good supervision by parent
Regular dental check-ups by a dentist every 4–6 months	

Children who are subject to falls can have protection by wearing head helmets, but intraoral appliances are not advisable for routine or continual use.

Speech and feeding plates can be very helpful to children with speech and feeding problems. They should be considered by any dentist who treats these children and works in close cooperation with the child's paediatrician and allied medical staff.

Preventive routines at home or in institutions — Should be personally prescribed by the dentist for each individual child (Table 3). Instruction in general oral hygiene measures should be given to the child, the child's parents and the staff at institutions or homes where the children reside.¹⁷ Tooth brushing techniques and flossing for the older children can be considered, but flossing is difficult for most of these children. Fluoride tooth pastes have shown good results^{18,19} and should be encouraged. Several studies on automatic toothbrushes have been completed.²⁰ These devices may be helpful for children who cannot perform manual brushing.

In children with rampant caries, custom trays for home fluoride application, or mouth rinsing within institutions can be considered. It should be limited, however, to those

who are capable of rinsing their mouths and would not swallow the gel or rinse. Gels should contain 1.1 per cent sodium fluoride concentration giving 0.5 per cent fluoride ion concentration with 0.1 Molar phosphate concentration at pH 5.6. Rinses should contain 0.05 per cent sodium fluoride concentration giving 0.02 per cent fluoride ion concentration at neutral pH. These can be given daily for short periods of time. They should not be continued indefinitely and the child should be assessed regularly during this treatment.

When contemplating appliance therapy, children must adhere to strict oral hygiene practices which staff at institutions or parents must likewise be prepared to enforce before orthodontic care is commenced.

The children should be encouraged to accept normal diets. Edentulous or mutilated mouths which occurred in the past and impeded mastication of normal food should no longer be encountered if the preventive procedures previously described have been put in effect.

Information about good dietary habits and the elimination of sucrose intake in the form of sticky in-between meal snacks should be stressed in homes and institutions.

The staff at institutions should be well informed about the dental care of children who reside there.¹⁷ The parents of children living at home must also be made aware of the oral hygiene procedure their children need.

Economics of care for the handicapped

Brown²¹ has shown that a comprehensive program of treatment and home care greatly reduced dental caries, improved oral cleanliness and controlled gingivitis in handicapped patients. Maintenance required less than half the time and approximately one-third of the cost of initial restoration. Unfortunately, no other information is available on the economics of dental treatment for the handicapped. Until more firmly based studies are completed, Brown suggests that his results may act as guidelines.

Conclusion

The opportunities for reducing dental disease and providing good oral health for handicapped children by available preventive procedures are now better than ever. Though most of these measures were developed for normal children, they can be adapted with slight modification to handicapped groups or individuals.

Thorough instruction of the parents or staff at hospitals and institutions is vitally important to sustain these procedures and assure good dental health between professional dental appointments.

This paper was read at a seminar on paediatric dentistry for children with handicapping disorders organized by the Hospital for Sick Children, Toronto, October 10, 1975.

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References on page 359

PROVISION OF A GENERAL ANAESTHETIC SERVICE FOR RESTORATIVE DENTISTRY

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The increasing awareness of the dental health problems of handicapped patients has prompted an interest in their treatment under general anaesthesia.

For the purposes of this paper, general anaesthesia is taken as being carried out in a hospital, usually under the auspices of a department of dentistry. The patient often possesses a complicating medical history and may be on medications of various types. His treatment may be lengthy, needing several hours of anaesthesia and requiring a team which usually includes an anaesthetist. These facilities are not readily available in the average dental office, nor are the recovery facilities which are essential for this type of work.

How many handicapped patients require general anaesthesia? Only a minority. It is the opinion of most workers in this field that the majority of such patients can be treated successfully under local anaesthesia in a dental office. This opinion has been upheld by the experience gained at the Dental Department of the Mount Sinai Hospital, Toronto, where the majority of such patients are treated in the chair. The size of the handicapped population is such that the dental needs of these unfortunate people can only be ultimately met in dental offices by general practitioners. There is no doubt that a number will require general anaesthesia and special management; however, they should be carefully screened before such a decision is made.

General anaesthesia even in the most expert hands always presents a risk which is greater than that incurred under local anaesthesia. Moreover, once the decision is made, the patient will have to be admitted to a hospital and occupy a bed which incurs a heavy financial burden for government, hospital or patient. The minimum stay is usually for two or three days. The treatment will be carried out by a team consisting of an anaesthetist, dentist, assistant and operating room nurse. In hospitals where dental interns are available, they provide invaluable help as assistants. The lengthy restorative procedures require expert assistance if they are to

be carried out smoothly and without complications. Again, the financial implications of such a team of experts, from anaesthetist to dentist to nurse are considerable.

Having outlined many reasons why general anaesthesia should not be decided on too lightly, there still remain certain patients who cannot be treated in any other way. From the mentally handicapped to the physically handicapped to the otherwise healthy patient with allergies to all local anaesthetics, there will be those for whom general anaesthesia is the method of choice. For such patients there is an increasing need for hospital facilities which include operating rooms equipped for the major phases of dentistry.

Despite the very great need for such facilities across the country, few centres are equipped physically or have trained staff to carry out this type of work.

Every hospital with a dental department should be able to include restorative dentistry under general anaesthesia in its program with very little additional financial or space requirements. Those without dental departments should strive to attract dentists onto their staff to develop such facilities.

Staff and facilities

Since comprehensive treatment sometimes includes surgery and periodontal treatment as well as fillings, minimum dental staff with operating room privileges should therefore include an oral surgeon, a dentist experienced in restorative dentistry and a periodontist. Often only one will be needed but there will be occasions when the treatment may require the presence of two or more specialists.

Although an actual dental clinic would be ideal, in smaller centres team members could work solely in the hospital operating room and must therefore hold hospital privileges admitting them to this area and possess a thorough knowledge of hospital protocol generally and in the operating area.

Equipment

The operating room facilities needed are those generally recommended for any area where general anaesthesia is administered. Although the treatment can usually be carried out successfully on an operating table, experience shows that the dental chair provides a more convenient means of operating, especially in restorative procedures. Provided all other facilities are available, anaesthetists generally have no problems in working with patients in the dental chair.

The fixed dental unit is contraindicated in this work. A mobile unit is required which may be either powered by compressed air or carbon dioxide cylinders or by a central compressed air supply via an umbilical cord from one of the walls. These units can be obtained without any electric fittings or mechanisms, thus eliminating the risk of operating room explosions. Their flexibility allows the anaesthetist unhampered access to the patient during the initial phases of anaesthesia, during the closing stages of the operation and during any emergency situation. The unit can also be removed when the treatment is solely surgical and allows unhampered assistance from either side of the chair.

Suction should be of a high efficiency, being sufficient to remove solid particles such as excess amalgam.

Patient management and hospital protocol

Initially, the patient is usually referred to the dental department of a hospital for treatment under general anaesthesia. At the first visit, his condition is assessed and a full examination is carried out, including, if possible, full-mouth periapical radiographs or at least a panoramic view. A treatment plan is then drawn up. The need for general anaesthesia is again assessed and in suitable cases a further attempt under local anaesthesia decided upon.

Once general anaesthesia is the method of choice, arrangements are made to have the patient brought in for treatment. For patients who are otherwise physically healthy, it is often possible for the operation to be carried out on a "no-bed required" basis, with the patient coming to the hospital in the morning, being treated under general anaesthesia and after recovery being discharged on the same day.

Not all hospitals have facilities for "no-bed required" cases. Moreover, many of these patients have a complicating medical history and are on special medications. For these, full admission is then mandatory. Special preparation may be necessary before anaesthesia so that these patients are therefore admitted as regular in-patients.

Admission for dental treatment is done under the joint care of a physician and dentist. Legal requirements demand that a physician admit and discharge the dental patient in conjunction with the dental staff members concerned. Before operation, the patient is examined medically and routine tests ranging from haematology to urinalysis to chest x-ray examination are carried out. He is seen by the physician in charge, by the anaesthetist and by the dentist who will carry out an intraoral examination and confirm the treatment plan to be followed in the operating room.

After suitable preparation, the patient is brought to the operating room. This may be an ordinary operating room of a hospital or a specially equipped room designed for this purpose in a dental department. The latter is more convenient; however, with mobile equipment all dental treatment can be carried out in a regular operating room. If in a dental department, the facilities must include all necessities to deal with any emergency that might arise during or after anaesthesia.

After the procedure, the patient is removed to the recovery area and is subsequently visited in his room by the dentist. On the next morning, the patient can usually be taken to the dental clinic for follow-up. Often it is possible to finish off restorative procedures and polish restorations. In the absence of medical complications, the patient is discharged on the day following the procedure.

The main dental complication to fear in such procedures is inhalation of a foreign object such as particles of filling material, part of the tooth or other debris. Although a pack and cuffed endotracheal tube are always used, during their removal there is a possibility of a small particle falling backwards and being inhaled. For this reason rubber dam is recommended whenever possible as well as constant suction to remove all particles of debris. These should be removed at once and not allowed to accumulate in the mouth.

Treatment which includes dental extractions as well as restorations requires a predetermined sequence so as to avoid having to cope with haemorrhage during restorative procedures or, worse still, fracturing a newly inserted filling while performing an extraction.

The team of four, anaesthetist, principal dentist, assistant dentist (intern or dentist) and nurse, is ideal for such cases. The two dentists carry out the treatment while the nurse who, ideally, should be a fully trained registered nurse, can supply their needs as well as assist the anaesthetist.

Hospital requirements include full documentation of such cases. It is the responsibility of the dentist in charge to adequately record the history and the findings of the oral examination. He is also required to write a detailed report of the procedures carried out and record all his postoperative orders. The patient should also be seen subsequently at follow-up clinics.

Given the extent of the health problem that this part of the population presents, there is a need for more hospital centres that can furnish adequate treatment to these patients under general anaesthesia. It is hoped that more dentists will become interested in this field, obtain hospital privileges in all areas of the province and then develop the facilities required.

Summary

I. Some, but not all, handicapped patients require general anaesthesia for dental treatment. They are a minority of such patients.

Continued on page 357

GENERAL DENTAL CARE OF THE CLEFT PALATE PATIENT

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Although not as dramatic as some of the other aspects of his overall treatment, the provision of regular dental care must take high priority in the total care of the cleft palate patient. Not only is the preservation of his dentition an essential objective in its own right, it is an integral part of the therapy of many of the other disciplines that contribute to his habilitation. The early initiation of a regular program of dental maintenance is essential if the patient is later to benefit fully from the special skills of the orthodontist and prosthodontist and receive really successful speech therapy. Too often in the past, dentists have been reluctant to provide routine care for cleft palate patients on the assumption that their dental needs were special. In truth, however, they require basically the same care as a normal patient. They need regular, high quality, restorative dentistry and motivation to good oral hygiene and preventive practices.

Restorative dentistry

The use of the rubber dam is mandatory in the cleft palate patient, where amalgam restorations must be of uncompromising quality if the long-term objectives of the orthodontist and prosthodontist are to be achieved. Provision should be made while placing the dam to ensure that the patient's breathing is unhampered. Many cleft palate patients have a deviated nasal septum, and some suffer from chronic nasal congestion.¹ The dentist should therefore always determine the adequacy of nasal breathing and, if necessary, make openings in the dam for the ingress of air.

Aside from rubber dam, amalgam restoration for the cleft palate patient does not differ from standard practice. On occasion, malposition of individual teeth poses a problem with regard to cavity design. The dentist must therefore visualize the position of such a tooth after corrective movement, and prepare the cavity so that normal coronal anatomy will exist after orthodontic correction. Although amalgam is the commonest material utilized, its physical

limitations should not be forgotten. Disruptive influences during development give rise to enamel hypoplasia and consequently, in the cleft palate population, the prevalence of this defect is high.^{2,3} Where restoration of hypocalcified posterior teeth is contemplated, consideration should be given to materials other than amalgam. Since the long-term preservation of such teeth will require full occlusal coverage, cast gold restorations are preferred in the permanent dentition. This procedure may well constitute a more conservative approach than attempting to overlay cusp tips with amalgam. In the primary dentition the placement of well-adapted stainless steel crowns is an excellent treatment for the hypoplastic molar. Another clinical advantage of the full coverage technique is that buccal retentive infrabulges are easily incorporated in these restorations, enabling cleft palate patients to retain the space maintainers, partial dentures, speech plates and orthodontic devices they often have to wear.

Space preservation

A dentist should set as his objective the retention of every primary tooth that contributes to the integrity of the dental arch. When indicated, the full range of pulpal therapeutics should be used.⁴ Although the incidence of caries activity in the cleft palate population is not excessive,⁵ direct and indirect pulp capping as well as vital and non-vital pulpotomy techniques may often be necessary. If at all possible, space maintenance should be by preservation of natural tooth units but when premature tooth loss cannot be avoided, artificial space maintenance must be instituted. In this way, the already extensive orthodontic treatment that many cleft palate patients require will not be exacerbated unnecessarily by loss of arch length. With regard to the permanent dentition, we should aim for the preservation of every tooth with sufficient root structure to be of eventual value in the final prosthetic treatment. Cleft palate patients are very prone to

coronal malformations in the maxillary anterior teeth adjacent to the cleft; peg and T-shaped incisors occur frequently; enlarged mamelons, paralabial tubercles and curved crowns are also encountered.^{2,3} Whenever the root structure warrants it, these teeth should be preserved with jacket crowns made of porcelain or porcelain fused to gold.

Radiographic approach

Good radiographic assessment is essential. Maxillary occlusal radiographs and panoramic films are useful adjuncts to routine surveys. Supernumerary and missing teeth occur with a higher than normal frequency in the cleft palate population³ and radiography will reveal these anomalies early.

Supernumerary and missing teeth

Supernumerary teeth in the primary dentition are best allowed to exfoliate normally unless they contribute to occlusal interference. In the permanent dentition, supernumerary teeth are usually extracted eventually. The timing of the extraction in relation to orthodontic therapy is important, and the dentist should consult the orthodontist beforehand. Early extraction often contributes to rapid alveolar bone loss which can complicate the orthodontic movement of adjacent teeth. Missing tooth units will be eventually incorporated in the patient's final prosthesis. However, consideration should be given to the early provisional replacement of anterior missing teeth, when possible, to minimize the patient's cosmetic deficiency.

Pain control

Difficulty is sometimes experienced in attempting anaesthetic infiltration procedures in the maxillary anterior region of these patients because of scar tissue and other effects of surgery. Usually, this problem can be circumvented by injecting into the nasopalatine foramen.

Preventive dentistry

Just as good restorative dentistry is essential to the total management of the cleft palate syndrome, so are adequate

preventive measures critical to good restorative care. As a group, cleft palate patients are more susceptible to periodontal problems than the normal population. The tendency to mouth breathing due to restricted nasal airways is manifest in mucosal desiccation and marginal gingivitis. In addition, surgical repair of the cleft lip often leads to some restriction of the oral opening, making oral hygiene maintenance rather difficult. For these reasons, regular professional prophylaxis is obligatory. A regimen of topical fluoride application and of daily home plaque removal should be initiated.

Conclusion

The opportunity to be an integral part of the habilitation of the cleft palate patient is one of the most satisfying experiences in the realm of paediatric dentistry, and should not be denied to those who practise outside the precincts of special treatment centres. It is my sincere hope that symposia such as this will help more general dental practitioners to participate in the habilitation process.

This article was contributed to a seminar on paediatric dentistry for children with handicapping disorders organized by the Hospital for Sick Children, Toronto, October 8-10, 1975.

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Anaesthetic service . . .

Continued from page 355

2. General anaesthesia often requires that a patient be admitted to hospital as an in-patient under the combined care of a physician and dentist.
3. Treatment may be carried out in a regular operating room with mobile dental equipment, but a special operating room in a dental department with a dental chair is preferable.
4. The operating team should consist of an anaesthetist, a principal dentist, an assistant dentist (intern or dentist) and a registered nurse.
5. The sequence in which treatment is carried out is important in order to avoid complications.

6. The main dental complication is the inhalation of intraoral debris. More dentists should seek hospital privileges and develop facilities for such treatment.

This article is a summary of a paper contributed to a seminar on paediatric dentistry for children with handicapping disorders organized by the Hospital for Sick Children, Toronto, October 8-10, 1975.

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SUCCINYLCHOLINE-INDUCED APNOEA

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Succinylcholine may be used as a pre-anaesthetic muscle relaxant to facilitate endotracheal intubation for general anaesthesia. The following report describes a case of succinylcholine induced apnoea and the management of this problem until the patient resumed normal breathing.

Report of a case

A five year old boy was referred to the Department of Oral Surgery, Victoria General Hospital, Halifax, for removal of several teeth.

Approximately one month prior to this referral he had been involved in a motor vehicle accident in which he suffered fracture of the right occipital bone and the left mandibular primary lateral incisor, with loss of the crown. The occipital bone fracture was treated conservatively and the child was discharged from the hospital 72 hours after admission, with an appointment to see his family dentist the following day. The family dentist referred the child for oral surgical evaluation and treatment.

The patient's past medical history was non-contributory.

Examination revealed a very apprehensive, well developed, well nourished, five year old boy who was alert, well oriented and quite unco-operative. Clinical and radiographic oral examination revealed a mixed dentition, in good occlusion and in keeping with the boy's age. The left mandibular primary lateral incisor root remained. The left maxillary primary incisor and the right mandibular primary lateral teeth were intruded, lingually displaced and discoloured. The remaining oral findings were within normal limits.

Proposed treatment included surgical removal of the previously mentioned root and teeth under general anaesthesia, in hospital or on an outpatient basis.

The patient was brought to the operating theatre where general anaesthesia was induced with thiopental sodium,

intravenously, in appropriate dosage. Oral endotracheal intubation was accomplished with the aid of intravenous succinylcholine, 20 mg. Anaesthesia was maintained with halothane, nitrous oxide and oxygen in appropriate concentrations. The operation was carried out uneventfully. Total operating time was eight minutes. At this point the patient was making no discernable effort to breathe spontaneously in spite of cessation of both halothane and nitrous oxide administration.

Spontaneous breathing failed to occur until 97 minutes following induction. During this period the patient was mechanically ventilated so that oxygenation was adequate. The electrocardiograph and blood pressure recordings remained within normal limits throughout the apnoeic period. A plasma cholinesterase (pseudocholinesterase) concentration was determined revealing a value of 44 units/ml (normal 134-282 units/ml).

The patient recovered without further event and one week later the oral wounds were healing well.

Discussion

Depolarizing (anti-repolarizing) muscle relaxant agents such as succinylcholine resemble acetylcholine in structure and action. They act by increasing the permeability of the motor endplate, at the myoneural junction, thus initiating depolarization. If succinylcholine is not rapidly hydrolysed by plasma cholinesterase, as it normally is, the repolarization will not occur, thereby preventing return of muscular function. This is the case in prolonged apnoea.¹

It has been estimated that prolonged apnoea will follow administration of succinylcholine with an incidence of about 1:3,000.² This apnoea is directly related to either low levels of normal plasma cholinesterase or presence of atypical plasma cholinesterase.

Low levels of normal plasma cholinesterase are associated with liver disease and poisoning by organophosphorus pesticides.³ Atypical plasma cholinesterase results from an autosomal recessive inherited disorder in which the enzyme present is actually an isoenzyme, qualitatively different from normal.

These two conditions can be differentiated by employing the dibucaine test,³ and it is important to do so in order that family members can be forewarned of a prolonged response. In persons homozygous for the defective gene, dibucaine will inhibit their atypical plasma cholinesterase activity about 20 per cent, whereas normal plasma cholinesterase activity is about 80 per cent inhibited by dibucaine. Heterozygotes have intermediate dibucaine values and less severe clinical manifestations.⁴

Plasma cholinesterase assay⁵ was performed on both mother and father of the patient with the following results: mother — 120 units/ml (normal = 135-242 units/ml); father — 142 units/ml (normal = 134-282 units/ml).

Further co-operation by the family was refused and hence further testing was not conducted. Nevertheless, it is reasonable to assume, due to the absence of liver disease in the boy, that an atypical gene was responsible for the prolonged apnoea.

Summary A case is presented of succinylcholine induced

apnoea in a five year old boy. The patient was treated by mechanical ventilation with close monitoring of vital signs until spontaneous breathing was resumed. Accurate family documentation proved impossible due to lack of co-operation of the patient's parents.

It behooves the dental practitioner to familiarize himself with potential risks of general anaesthesia if he is to deliver high quality hospital dental care.

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BRITISH COLUMBIA — Victoria. Complete two chair practice on the edge of downtown area. Present owner retiring. Write to Mr. J. Rees, Suite 414, 1207 Douglas St., Victoria, British Columbia or phone (604) 385-9707.

BRITISH COLUMBIA — Williams Lake. For Sale: Well established practice in Central British Columbia. Three operatories fully equipped, private office, lab., 850 sq. ft. on ground level. Office is located in downtown shopping area. This is an ideal outdoor recreation area. Reply to: Dr. E. T. Oakley, 350 Borland Street, Williams Lake, B.C. V2G 1R6.

ONTARIO — Mississauga. West Toronto. Established practice for sale. Dundas and Hwy. 427 area. Modern facilities in professional building. 400 sq. ft. with approximate additional 400 sq. ft. available which adjoins. Family practice general dentistry with considerable crown and bridge. One operator equipment, Weber multi-unit, lounge chair, modular carts, vacuum etc. Owner retiring this fall. Good base for young practitioner to develop top and modern practice. Telephone Marge (416) 275-1921.

ONTARIO — Mount Forest. Practice for sale. Dental practice and building in community of 3200, very large drawing area. Two Midwest equipped operatories, 900 sq. ft. of office space. Up-to-date techniques, fee schedule and equipment have been used in this office. Please reply to CDA Box Number 1598.

ONTARIO — North Toronto. Busy modern practice with part-time hygienist for sale. Reply: CDA Box #1604.

ONTARIO — Sioux Lookout. Excellent opportunity. The town of Sioux Lookout will provide two fully equipped operatories in a modern dental suite on a low monthly rental basis. An underserved area grant of \$18,000 or a guaranteed annual income of \$28,000 is also available. Reply to: Mr. P. E. Salem, Clerk-Treasurer, Town of Sioux Lookout, P.O. Box 158, Sioux Lookout, Ontario P0V 2T0.

QUEBEC — Banlieu de Montréal. Pratique à plein ou demi-temps offerte à un dentiste pour partage bureau et clientèle avec un confrère. Tout équipement fourni, 2 salles complètes. Ouvert à toutes suggestions. Appeler Mlle Andrée: (514) 842-7954.

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BRITISH COLUMBIA — New Westminster. Associate required for practice in all phases of general dentistry, especially crown and bridge. Call or write Dr. I. S. Moskovitch, #208-522 - 7th Street, New Westminster, B.C. V3M 5T5. Telephone (604) 522-9818.

BRITISH COLUMBIA — The Queen Charlotte Islands. Associate required for a prevention oriented practice in a small town by the sea. An opportunity to practise dentistry in a low key, low tension atmosphere surrounded by natural beauty. Write D. H. Nomura, D.D.S., Box 68, Queen Charlotte City, B.C.

BRITISH COLUMBIA — Revelstoke. We are looking for a mature associate to work in a non-traditional, *health-oriented* environment in a mountain town. A busy family practice of preventive, *patient-oriented* dental care including periodontics, endodontics, preventive ortho and other unavailable specialty services. A challenging opportunity at Box 2118, Revelstoke, B.C.

BRITISH COLUMBIA — Vancouver. Associate required for general practice in Vancouver, modern, centrally located dental office. Reply to 2107 W. 16th Avenue, Vancouver, B.C., 733-2225.

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ONTARIO — Arthur. Associateship available in Midwestern Ontario. Apply Box 160, Arthur, Ontario N0G 1A0.

ONTARIO — Hamilton. Associate for Dental Group Practice. Excellent associateship available in well established preventive group practice. Busy downtown location. Fully equipped office, congenial staff. Phone (416) 526-8573.

ONTARIO — London. Associateship full or part time in a long established practice. All phases of general dentistry. For further information reply to CDA Box Number 1561.

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ONTARIO — Sudbury. Excellent associateship available in a well established progressive practice. This group practice is at present made up of eight operatories, two dentists, one hygienist and a competent office staff. Please reply to CDA Box Number 1552.

ONTARIO — Toronto. Associate required. Paedodontist or individual willing to limit practice to paedodontics. Subsequent partnership in group Paedo practice. Please send resume to CDA Box Number 1606.

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MALAWI — Mzuzu. "Needed urgently" — services of a qualified dentist for operation of mobile dental clinic in Mzuzu, Malawi. Contact Miss Audrey McKim, Division of World Outreach, United Church of Canada, 85 St. Clair Avenue East, Toronto, Ontario, M4T 1M8. Telephone (416) 925-5931 (241).

ONTARIO — Kitchener-Waterloo. Dental Hygienist required for full or part time position. Modern preventive practice in a progressive University city 50 miles west of Toronto. Reply to: Dr. Garry Howatson, 124 Weber St. N., Waterloo, Ontario. Phone (519) 885-4770 office or 885-1809 residence.

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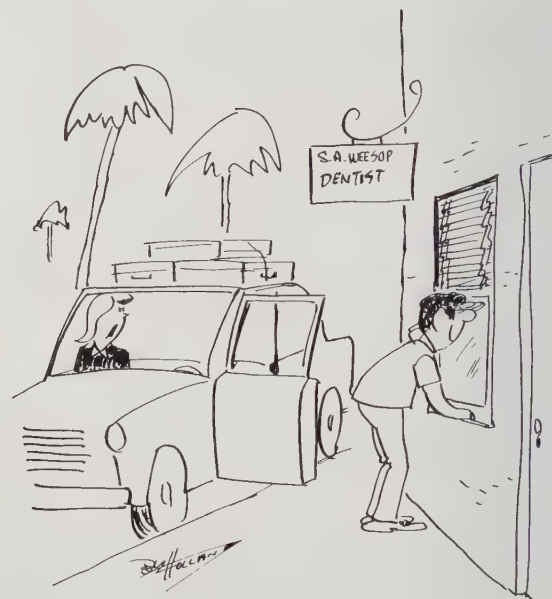
ADVERTISERS' INDEX

Ash Temple Ltd.	33
Astra Chemicals Ltd.	OBC
Block Drug Co.	331
L. D. Caulk Co. of Canada	346
Colgate-Palmolive Ltd.	337
Denco	345
Dentsply International	326, 339
Eaton Laboratories	IFC
Feature Finance Inc.	351
Charles E. Frosst & Co.	343
Janar Company	333
Pelton & Crane Co.	329
Procter & Gamble	325
Weil Dental Supplies Ltd.	IBC

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Canadian Dental Association

National Convention



Edmonton, Alberta/September 12-15, 1976

COMPLETE AND MAIL TO:

Canadian Dental Association/L'Association Dentaire Canadienne
234 St. George Street/Toronto, Ontario M5R 2P2/Canada/(416) 962-3261

IMPORTANT

This form is to be completed by those desiring advance registration and/or accommodation in Edmonton during the forthcoming convention.

ARRIVAL DATE _____
TIME _____
DEPARTURE DATE _____
TIME _____

Accommodation not required. ☐

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If wife/husband attending, name _____

Address to which all correspondence should be sent _____

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Congrès national de

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Edmonton, Alberta/du 12 au 15 septembre 1976



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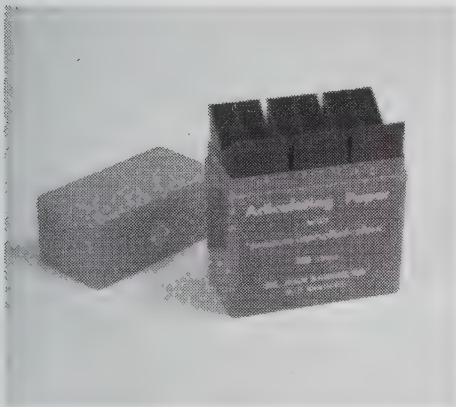
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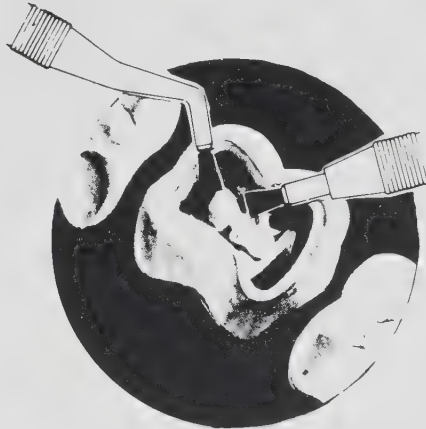


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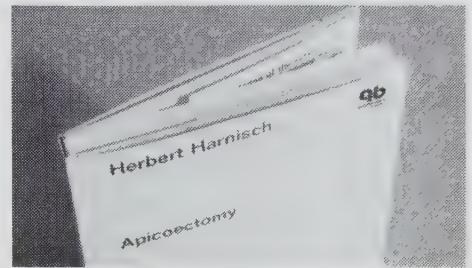
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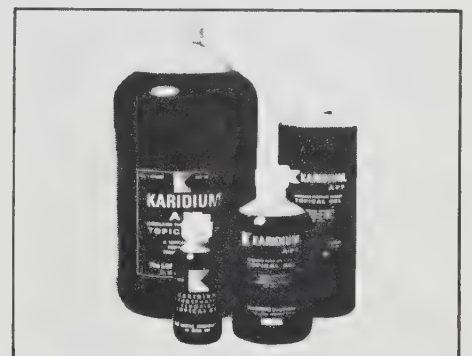
APICOECTOMY

by Herbert Harnisch, Prof. Dr. med., Dr. med. dent.

Professor Harnisch's Apicoectomy may contribute to the performance of this procedure in the office of the general practitioner. A wealth of information concerning nomenclature, the history of the development of the procedure, as well as indications for the procedure are found in the book. Preparative steps, instrumentation, technique, and operative and post-operative medication are so well described that the book may serve as a complete guide to the operation, even to those dentists who heretofore have avoided it. Furthermore, the procedure of retrograde root canal filling is so well taught that it may easily be performed more often. Alveolectomy of third molars is infrequently performed but is well described here and is interesting to read about.

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Aug/Août 1976/Volume 42/No 8

Canadian Dental Association/Association Dentaire Canadienne



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Editorial

Conventions — what, why and for whom?	370
---------------------------------------	-----

Regular Features

Announcements	368
Dentistry in the news	372
Les actualités dentaires	401
Convention news	389
Deaths	380

Articles

Oral health assessment of residents of a Chatham, Ontario home for the aged — Martinello	405
A four year evaluation of a fissure sealant in a public health setting — Leake and Martinello	409

Classified advertising	416
------------------------	-----

Advertisers' index	420
--------------------	-----

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Information about other meetings or courses, including American continuing education courses, may be obtained by writing to CDA headquarters.

Canadian Dental Association
1976, Edmonton, Alta, Sept. 12–15.

Fédération Dentaire Internationale
1976, Athens, Greece, Sept 26–Oct 2;
1977, Toronto, Oct 22–28.

Canadian Meetings

Canadian Academy of Oral Radiology, at Edmonton, Sept. 12, 1976. Dr. C. E. Hawrish, Dentistry-Pharmacy Centre, University of Alberta, Edmonton, Alta T6G 2H7.

Canadian Occlusion Symposium, at Chateau Lacombe, Edmonton. Sept. 12–13, 1976. J. N. Nasedkin, #415, 925 West Georgia, Vancouver, B.C. V6C 1R5.

Canadian Academy of Endodontics, at Chateau Lacombe, Edmonton. Sept. 14–15, 1976. Dr. H. Wiener, 4141 Sherbrooke St. W., Suite 515, Westmount, Que. H3Z 1B8.

Canadian Society of Forensic Science, at Quebec City. Oct. 13–15, 1976. Dr. R. B. J. Dorion, Canadian Society of Forensic Science, 63 Kilbarry Cres., Ottawa, Ont. K1K 0H2.

The Law and Economics Program, Faculty of Law, University of Toronto, 1976, Toronto, Ontario, October 15 and 16. The Law and Economics Program will sponsor a national conference on "The Professions and Public Policy". Conference Office, 12th Floor, Ontario Institute for Studies in Education, 252 Bloor Street West, Toronto, Ontario M5S 1V6. Telephone (416) 923-6641, ext. 391. Registration fee: \$120.00

Ontario Society of Clinical Hypnosis Basic and Intermediate Workshop, at Royal York Hotel, Toronto. Nov. 12–14, 1976. OSCH, 243 St. Clair Ave. W., Toronto, Ont.

Montreal Dental Club Pre-Convention Seminar, at Montreal. Nov. 13–14, 1976. Miss M. Komarnicka, 4166 St. Catherine St. W., Montreal 215, Que.

Montreal Dental Club Fall Clinic, at Montreal. Nov. 15–17, 1976. Miss M. Komarnicka, 4166 St. Catherine St. W., Montreal 215, Que.

Les Journées Dentaires du Québec, at Quebec Hilton, Quebec. May 22–26, 1977. Dr. M. R. Lang, 5171 Decarie Blvd, Montreal, Que. H3W 3C2.

Congress on Cleft Palate and Related Craniofacial Anomalies, at Royal York Hotel, Toronto. June 5–10, 1977. Deadline for abstracts Sept. 30, 1976. Advance registration closes Dec. 31, 1976. Congress Secretariat, 191 College St., Toronto, Ont. M5T 1P7.

Western Canada Dental Society, at Banff Springs Hotel, Banff, Alberta. July 3–6, 1977. Dr. D. Pedlar, Publicity Chairman, Western Canada Dental Society, 1711 - 4th St. S.W., Ste 303, Calgary, Alta T2S 1V8.

International Meetings

American Society of Oral Surgeons, at New York, Sept. 17–21, 1976. American Society of Oral Surgeons, 211 East Chicago Ave., Chicago, Ill. 60611, USA.

American Institute of Oral Biology, at Palm Springs, Calif. Oct 22–26, 1976. Executive Secretary, American Institute of Oral Biology, P.O. Box 481, South Laguna, Calif. 92677, USA.

American Academy of Implant Dentistry, at Las Vegas. Nov 11–13, 1976. American Academy of Implant Dentistry, 469 Washington St., Abington, Mass. 02351, USA.

American Prosthodontic Society, at Las Vegas, Nov 12–13, 1976. R. B. Underwood, 919 North Michigan Ave., Ste. 2108, Chicago, Ill. 60611, USA.

American Dental Association, at Las Vegas, Nevada. Nov. 14–18, 1976. Convention Bureau, American Dental Association, 211 East Chicago Ave., Chicago, Ill. 60611, USA.

American Academy of Periodontology, at San Francisco. Nov 17–20, 1976. Miss M. Holmquist, 211 East Chicago Ave., Ste. 924, Chicago, Ill. 60611, USA.

International Congress of the Association Dentaire Française, at Paris, France. Nov 30 – Dec 4, 1976. Dr. J. Charon, Association Dentaire Française, 22 avenue de Villiers, 75017, Paris, France.

American Society for the Advancement of Anesthesia in Dentistry, Congress on Modern Pain Control, at Monte Carlo, Monaco. Dec. 7, 1976. Dr. A. Reyes-Guerra. 475 White Plains Rd, Eastchester, NY, USA.

Asian Pacific Dental Congress, at Manila. Feb 7–12, 1977. P.O. Box 945, Manila, Philippines.

International Conference on Oral Surgery, at Sydney, Australia. May 16–20, 1977. F. E. Helmore, O.B.E., G.P.O. Box 2355, Sydney 2001, Australia.

American Society of Dentistry for Children, at San Francisco. July 31 – Aug 4, 1977. R. A. Ruddy, American Society of Dentistry for Children, 211 East Chicago Ave., Chicago, Ill. U.S.A.



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EDITORIAL

CONVENTIONS — WHAT, WHY AND FOR WHOM?

Throughout the years, people involved in various specific fields of interest or endeavour have periodically gathered together to exchange information, ideas and philosophies. This is what a convention is all about. It provides delegates with an opportunity to share with, and learn from, their colleagues.

In the field of dentistry, the convention has become a special kind of learning experience, unique in its melding of academics, clinicians, practitioners and manufacturers and suppliers of dental products and equipment. The dental convention has many facets. It provides a forum for the presentation of new ideas; a forum where these ideas can be discussed, criticized, improved upon, or, perhaps, rejected. It provides those involved in the day-to-day practice of dentistry with an opportunity to learn of new concepts and techniques and to update themselves on the research being carried out in their particular field of interest. Finally, it provides manufacturers a chance to meet with their clients and explain firsthand the details of their products, equipment and ideas.

This, then, is the process of learning and sharing that makes a dental convention work in its own unique way. This is the concept that creates a first rate dental convention.

In the milieu of North American dentistry there are a number of outstanding examples of this concept. In the United States there is the Greater New York Meeting held in December, the Chicago Midwinter Meeting held in February, and the Hinman Meeting held each spring in Atlanta, Georgia. Canada too hosts a number of excellent meetings which fulfil all the requirements necessary for a great dental convention.

However, in Europe, a new approach seems to be gaining ground: that of a dental trade show, produced every three

years, organized and operated by the manufacturers and suppliers. The primary purpose of this show is, of course, to furnish the dental trade with a mass audience for their sales pitch. There have been attempts here in Canada to set up dental trade shows, but the idea has so far met with little success.

There is nothing basically wrong with the idea of a trade show per se. It is the next step which frightens me. I have heard the stirring of a suggestion that the dental trade would like to become more involved in our conventions, would like to influence the clinical programs as well as operate the exhibits. There is a very real danger in this. We could easily have certain areas of our learning influenced and guided by the manufacturers of particular products.

I have served on convention committees on and off since 1950, and the 65th World Dental Congress, to be held next year in Toronto, will be my swan song. I have seen dental conventions becoming more and more complex; so complex, in fact, that I now believe they require the full time attention of a convention staff for a whole year in advance to really put on a good show. However, we will still need volunteers like myself, unpaid, serving the profession they love and that has been so good to them. These are the people who must plan the clinical input of a dental convention. These are the people who must organize a scientific program that is broad in scope, challenging and, above all, unbiased. This is what makes a dental convention the great learning, sharing and fraternal experience it is.

Murray Cornish, DDS
Chairman,
CDA National Conventions Committee



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AMENDMENTS TO CANADA'S COMBINES INVESTIGATION ACT

Canada's Combines Investigation Act, with the exception of its Section 32, became applicable to the service industries generally on January 1, 1976. Section 32 of the Act, which prohibits agreements to lessen competition unduly, became applicable to services on July 1, 1976.

In early June, the Director of Investigation and Research of the Combines Investigation Act wrote to Lloyd Stevenson, Acting Executive Director of the Canadian Dental Association, with information regarding the revised legislation and the application of the Act to service industries, including the services offered by CDA members. The stated purpose of the letter was "to obtain voluntary compliance with the provisions of the legislation and to seek co-operation in advising members of the Association and any affiliated bodies of the changes that have been made in Canada's competition policy."

Although CDA has no involvement in the preparation or distribution of any Fee Guide, Mr. Stevenson contacted the Association's legal advisers and asked them to prepare a draft letter regarding the amendments to the Act. This draft letter was then sent to each provincial corporate member with the suggestion that they circulate it to their members to ensure that every dentist across Canada realizes that a Fee Guide is only a schedule of advisory guidelines and adherence to it is not in any sense obligatory.

The draft letter prepared by CDA's lawyers reads as follows:

"As you may be aware, the Com-

binés Investigation Act has recently been amended in a way which will have significant implications for our profession. Previously, the application of the Act was restricted to dealings in articles and the service industries and professions, including dentistry, were not subject to any of its provisions. As a result of the amendments, the application of the Act has been extended to services and professions. The effect of this will be to limit the extent to which competition can be restricted in the professions.

"The most significant amendment with regard to our profession is that made to section 32 of the Act which, effective July 1, 1976, will provide as follows:

"32. (1) Everyone who conspires, combines, agrees or arranges with another person

(a) to limit unduly the facilities for transporting, producing, manufacturing, supplying, storing or dealing in any product,

(b) to prevent, limit or lessen, unduly, the manufacture or production of a product, or to enhance unreasonably the price thereof,

(c) to prevent, or lessen, unduly, competition in the production, manufacture, purchase, barter, sale, storage, rental, transportation or supply of a product, or in the price of insurance upon persons or property, or

(d) to otherwise restrain or injure competition unduly,

is guilty of an indictable offence and is

liable to imprisonment for five years or a fine of one million dollars or to both."

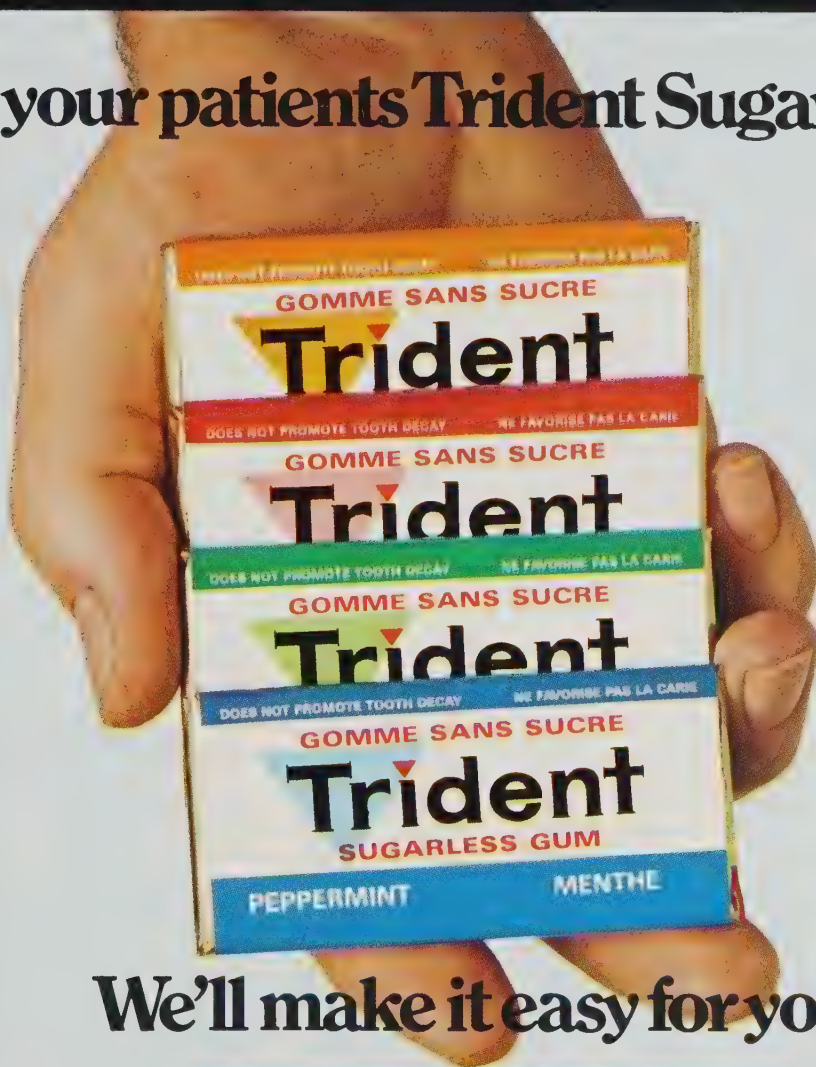
"The word 'product' used in this section is defined to include a professional service and 'supply' is defined to include the provision or offering of a professional service. References to the supply of a product in the section, therefore, include the offering or provision of professional dental services.

"As a result of the amendments, it will now be illegal under the provisions of the Combines Investigation Act for members of the dental profession to agree or arrange among themselves to lessen competition unduly in relation to the provision of dental services or other charges. Thus agreement among dentists, who are competitors, to charge a uniform fee or a minimum fee for similar services, to share business or to refrain from treating patients in a particular area may be illegal. For example, an agreement among the dentists in a particular area to adhere to the fee schedule set out in the Fee Guide published by the Association would likely constitute an offence under section 32 of the Act.

"The Association's legal counsel are presently considering the implications of the amendments to the Combines Investigation Act with regard to the Fee Guide and other matters such as the restriction on advertising and we will advise you further as to this. In the meantime, we wish to take this opportunity to remind you that the Fee Guide published by the Association is only a schedule of advisory guidelines and adherence to it is not in any sense obligatory on members."

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NEW EXECUTIVE DIRECTOR FOR ALBERTA DENTAL ASSOCIATION

Bruno P. Martinello is the new Executive Director of the Alberta Dental Association. He officially resumed the post on July 1 of this year.

Born in Toronto, Dr. Martinello is a 1955 dental graduate of the University of Toronto. In 1962, he received his Diploma in Dental Public Health from the same University and served as a Regional Dental Director in South-western Ontario until 1965. He moved to Alberta in 1965 and served two years as Dental Director with the Sturgeon Health Unit. In 1966, he accepted a part-time teaching position with the University of Alberta's School of Dental Hygiene and, the following year, was appointed a full-time staff member of the Faculty of Dentistry in Community Dentistry.

Dr. Martinello joined the University of Western Ontario's Faculty of Dentistry in 1968 as chairman of the broad discipline of community dentistry. He became a full professor in 1974. In addition, from 1972 to 1976, he was the Faculty Representative on the Board of Directors of the Royal College of Dental Surgeons of Ontario.

He served on several Ontario Ministry of Health committees between 1970 and 1976 and performed committee work for his local dental society, the Ontario Dental Association and the Canadian Society of Public Health Dentists. He also served as chairman of the Canadian Dental Association's dental hygiene program accreditation teams. Articles by Dr. Martinello have been published in the Journals of the Canadian Dental Association and the Canadian Public Health Association.

In 1975, the Royal College of Dentists of Canada conferred on him a Charter Fellowship in Public Health. He acquired the National Dental Examining Board/Royal College of Dentists of Canada specialist certificate in 1976.

Dr. Martinello's professional memberships include: the Royal College of Dental Surgeons of Ontario; the Canadian Dental Association; the Canadian and Ontario Public Health Associations; the Canadian and Ontario Societies of Public Health Dentists; and the Royal College of Dentists of Canada.

First hearing held for Applied Health

The first meeting of creditors of Applied Health Services, Inc. and Metrodent Corporation was held in the U.S. District Court in Miami on June 12. On April 30, Applied Health and Metrodent filed a petition to reorganize under Chapter 11 of the federal bankruptcy laws.

Applied Health and Metrodent were granted 90 days from June 12 to file a plan for satisfying their debts to dentists and other creditors.

Advice to creditors will be provided by a court-appointed creditors committee which will assist dentists and others in preparing and filing their claims against Applied Health.

Alberta Dental Association lines up new headquarters

The Alberta Dental Association will soon have a new and permanent home. A two-and-one-half floor office building, comprising a total of 9,250 square feet, has been purchased from the Association of Municipalities and Counties. The ADA expects to take possession of the premises around January 1, 1977.

The building, located on the corner of 105th Street and 83rd Avenue in Edmonton, is of white brick construction carried through to interior finish which has oak trim. It is fully air conditioned and maintenance is expected to be minimal.

Newfoundland seeks dentists in U.K.

On June 7, Newfoundland Health Minister Harold Collins announced that his department is on a recruiting campaign in the United Kingdom for dentists needed to practise in rural areas of the province.

The minister did not specify the number of dentists his department was seeking or the time span of the recruiting campaign. He indicated, however, that similar ventures in Europe in the past had been successful.

CDA IN OTTAWA HEADQUARTERS

Lindsay Mussells, DDS, president of the Canadian Dental Association, is pleased to announce that CDA is now operating from its new Ottawa headquarters building. The address is: 1815 Alta Vista Drive, Ottawa K1G 3Y6. Telephone: (613) 523-1770.

Dr. Mussells also announced that official opening ceremonies for the new headquarters will be held at a later date.

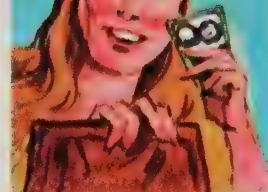
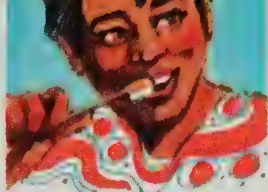
CFDE MOVES TO NEW OFFICE

The Canadian Fund for Dental Education has moved to its new office. The address is: 44 Eglinton Avenue West, Toronto M4R 1A1. Telephone: (416) 481-0650.

Arrangements have, of course, been made to forward all mail sent to the previous address. However, it will speed up delivery if the new address is used from now on.



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SPECIAL PROSTHODONTICS FELLOWSHIP EXAMINATION

Due to the recent re-definition of the term "prosthodontics", the Royal College of Dentists of Canada is holding a special examination for Fellowship for those who can qualify. This special examination will be held during the week of June 20, 1977, and will not be repeated.

Forms may be obtained from the College's office: Suite 614, Medical Arts Building, 170 St. George St., Toronto M5R 2M8. Applications should be submitted to the RCD(C) office by December 1, 1976.

The special examination will consist of the following:

1. An oral examination of approximately 90 minutes, covering the general field of prosthodontics and the specific field of restorative dentistry (fixed prosthodontics and operative

dentistry). Topics included will be: occlusion, the relationship of the periodontium to restorative procedures; clinical methodology; dental materials used; long term treatment philosophies employed; and relevant basic science of the discipline.

2. The presentation of two cases of completed treatment in which the principles of advanced restorative dentistry are illustrated. Records for these cases must include: mounted diagnostic and final casts; pre- and post-operative full mouth radiographs; written reports describing the rationale and sequence of treatment along with color pictures of the clinical stages of treatment. The candidate is expected to justify his or her use of techniques, materials and instrumentation.

Eligibility for candidates to take this examination is as follows:

1. An individual trained in a specialty area prior to 1965 and not previously eligible as a candidate for Fellowship examination (initial interim or otherwise).

2. Individuals engaged in the clinical practice, teaching and/or research in a specialty area for a minimum of 10 years prior to 1965, without specialty training, who have made significant contribution to this specialty field (on the recommendation of peers and/or provincial specialty recognition and the acceptance of the Credentials Committee) and who were not previously eligible for examination.

The Credentials Committee, with representation from the specialty, will determine eligibility.

There will be three examiners, two from Canada and one from the United States, for this special examination.



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Teachers of Oral Pathology

The annual meeting of the Eastern Society of Teachers of Oral Pathology will be held at the University of Western Ontario in London, Ontario, October 15-17, 1976. The program will include group discussions on WHO classifications as they apply to Oral Pathology.

For further information, contact: Dr. Ralph I. Brooke, Chairman of the Department of Oral Medicine, University of Western Ontario, London.

Ontario Society of Orthodontists

The Ontario Society of Orthodontists recently elected its executive officers to serve for the 1976-77 term of office. They are: Ron Cross, president; Randy Lang, vice-president and representative to the Royal College of Dental Surgeons; Don Gilbert, secretary-treasurer and representative to the insurance committee; and, John Jenkins, member of the specialty committee to the Ontario Dental Association.

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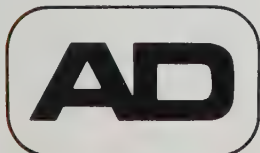
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REFERENCES

- 1) McLean JW; Wilson AD "Fissure Sealing and Filling with an adhesive glass ionomer cement," B.D.J. 136, No. 7 pp 269-276, 1974.
- 2) McLean JW, Wilson AD: Die Klinische Entwicklung von Glas/Ionomer-Zementen Schw. Mschr. Zahnheilk. 84, 697, 1974.
- 3) Wilson AD; Kent BE "A new translucent cement for dentistry—the glass ionomer cement", B.D.J. 1972, 132, 133.
- 4) Wilson AD; Kent BE: "The Glass-Ionomer Cement—a new translucent dental cement", J. App. Chem. Biotechnol. 21 Nov. 1972.

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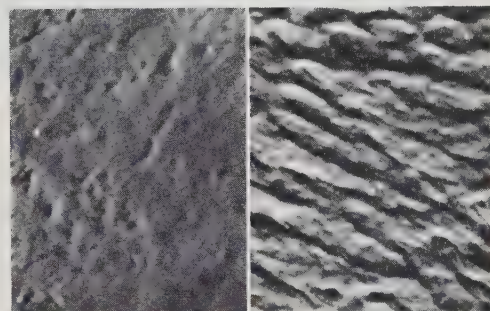
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COST-EFFECTIVENESS OF FLUORIDE MOUTHRINSE PROJECTS STUDIED

Under sponsorship of the National Caries Program of the National Institute of Dental Research (NIDK), Bethesda, Maryland, approximately 75,000 children now living in low fluoride areas across the United States are participating in 17 school-based demonstration projects to determine the cost-effectiveness of weekly mouth-rinsing with a 0.2% solution of sodium fluoride as a dental caries preventive technique.

In the first such program to be launched by the NIDR, children in kindergarten through eighth grade are rinsing with the fluoride solution, which has been shown to reduce tooth decay by 20 to 50 per cent.

Although other preventive measures were considered, the neutral sodium fluoride rinse was viewed as an ideal procedure because of its low cost, ease of implementation, minimal classroom interruption time (5 minutes a week), and the flexibility in using non-dental personnel for supervision.

Dr. James P. Carlos, Associate NIDR Director for the National Caries Program, points out that these projects do not relate to efficacy and safety, which have already been established. The focus is rather on cost-effectiveness and community acceptance. No procedures are offered for demonstration unless they have first undergone rigorous clinical trials.

Records on costs and effectiveness are being maintained, thus providing information which can be made available to communities interested in initiating such programs.

Participation is voluntary, and there is no cost to the children's families. Notices of the dental status of selected children are sent to parents, but the program is not intended to replace regular check-ups and treatment or proper home dental care, Dr. Carlos emphasizes. The mouthrinse demonstration will continue under NIDR sponsorship until February 1979.

Dental schools switch from three to four year program

Dental schools at the University of Detroit and the Medical College of Georgia have become the second and third dental institutions in the U.S. to return to four-year programs after trying the three-year programs for several years. The first school to return to the four-year program was Boston University School of Graduate Dentistry. The switch in program became effective in all three schools with the 1975 freshman class.

Dr. Henry Jupa, associate dean and director of clinics at the University of

Detroit's School of Dentistry, said the administration decided to return to the four-year program because the shorter curriculum was inadequate for training. He explained that students participating in the three-year program had less opportunity for clinical experience and said that several of the graduates had failed the state board examinations. Dr. Jupa also stated that the University's new administration was of the opinion that the three-year program was inadequate in every respect.

GROUP PRACTICE! Thinking about it or already in it? The Great Lakes Chapter of the American Academy of Dental Group Practice will hold an organizational meeting in late September in St. Catharines, Ontario. Coming is a 3-day Conference in Toronto, June, 1977. For information and exact date call Ivan Hrabowsky at (416) 688-1500. Do it **now** or you won't **know**.

Correction of dento-facial deformities

A two-day seminar on Surgical-Orthodontic Correction of Dento-Facial Deformities will be held at Albert Einstein College of Medicine, New York, on Thursday and Friday, November 4-5, 1976. New surgical techniques, new concepts in surgical orthodontic treatment timing and sequencing, bone grafting, complications, operating on growing patients, and relevant research in the area will be discussed.

The clinicians for the two-day seminar will be Bruce N. Epker, Director, Division of Dentistry, Tarrant County Hospital District, Fort Worth, Texas; Larry M. Wolford, and Leward C. Fish. The seminar will be of special interest to oral surgeons, orthodontists, and physicians specializing in head and neck surgery.

For further information, please contact the Director, Postgraduate Dental Program, Albert Einstein College of Medicine, Bronx, New York 10461.

DEATHS

Billings, Maurice Roger. 90. Cayuga, Ont. Royal College of Dental Surgeons of Ontario, 1908. 17-6-76. Survived by Roger and Kilborn (sons); Catherine (daughter).

McBroom, Robert Elwood. 72. Brockville, Ont. University of Toronto, 1926. 9-5-76.

McKellar, Hugh Ellar. 80. St. Thomas. Royal College of Dental Surgeons of Ontario, 1923. 17-6-76.

Pattison, Lorne Russell. 82. Welland. Royal College of Dental Surgeons of Ontario, 1918. 7-6-76. Survived by Florence (wife) and Mrs. Barbara Young (daughter).

Reynolds, Leeland Almon. 54. Canadian Forces. Dalhousie University, 1957. 28-6-76.

Tupper, James Aubrey. 74. Lunenburg, N.S. Dalhousie University, 1928. 5-6-76. Survived by Joyce (wife), and James (son).

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CLINICAL HISTORY

*You say you
want clinical
evidence!*

†8 out of 10 doctors surveyed chose physical properties proven by long term clinical evidence as the most important criterion for selecting an amalgam for use in their practices.

DISPER

THE ONLY AMALGAM THAT CAN SHOW CLINICAL EVIDENCE LIKE THIS...



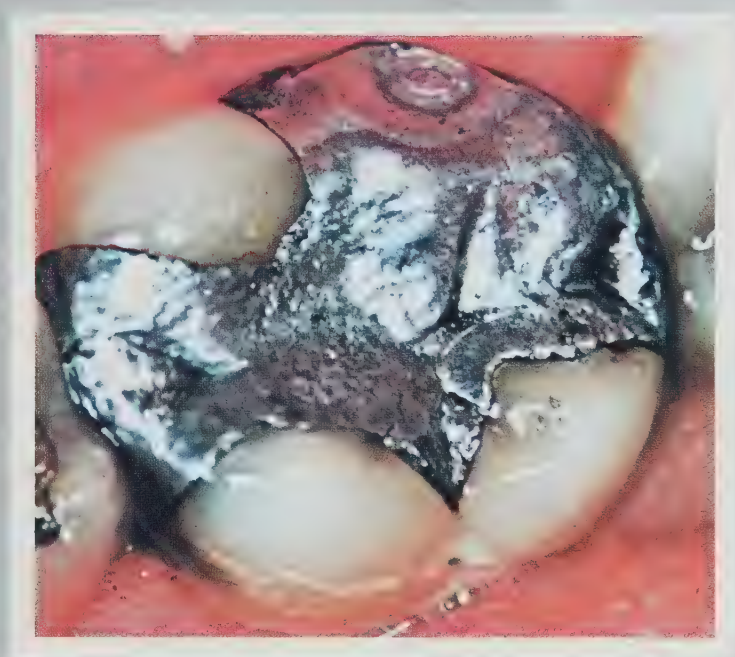
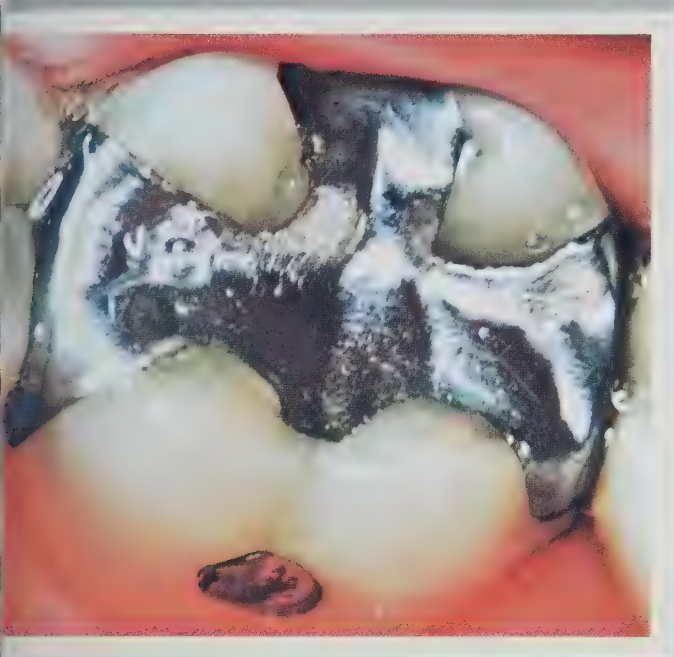
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DISPERSALLOY

BRAND

Dispersed Phase Alloy



10 YEAR[†] DISPERSALLOY*

Minimal, Corrosion-Free

At the most, 0.3% corrosion-prone Gamma II¹.

Minimal Ditching

DISPERSALLOY* has dramatically low creep^{4, 5, 6, 7}—the single proven physical property which appears most predictive of marginal fracture^{4, 8}.

Dispersion-Strengthened

Silver/Copper eutectic particles in DISPERSALLOY* form a bond to the matrix stronger than the matrix itself⁹.

High Early Strength

1-hour compressive strength of DISPERSALLOY* approaches maximum masticatory pressures¹¹. Most restorations which eventually fracture probably form the initial fissure during the first few hours¹⁰.

10 YEAR[†] CONVENTIONAL AMALGAM

Dull, Discolored

... may have as high as 10% corrosion-prone Gamma II^{2, 3}.

Greater Marginal Breakdown

A conventional amalgam tested had over 8 times higher creep (plastic deformation under loading) than DISPERSALLOY*⁷.

No Dispersed Phase

Conventional amalgams contain no dispersed phase particles. Particle *shape* ... spherical or otherwise ... makes little difference to the final strength of any amalgam after setting.

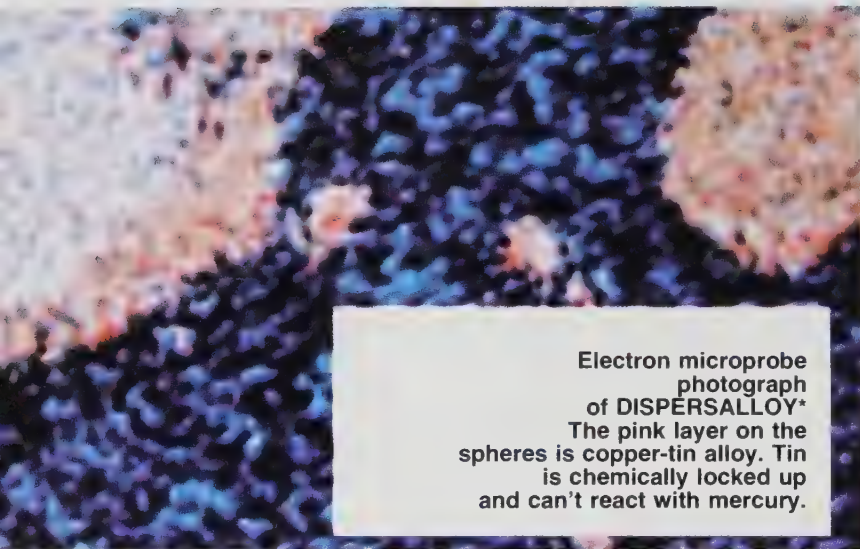
Varied Early Strength

Some of those conventional amalgams which do have high early strength also contain high corrosion-prone Gamma II, and may exhibit high creep.

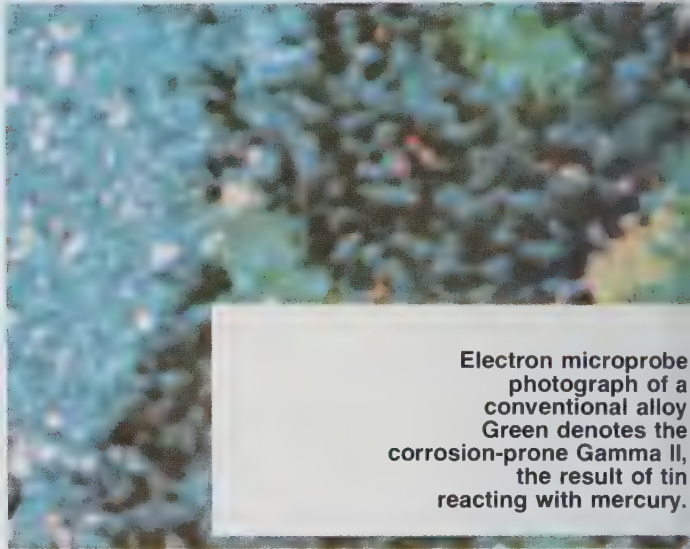
DISPERSALLOY[®]

Dispersed Phase Alloy

IS DIFFERENT THAN CONVENTIONAL ALLOYS



Electron microprobe photograph of DISPERSALLOY*. The pink layer on the spheres is copper-tin alloy. Tin is chemically locked up and can't react with mercury.



Electron microprobe photograph of a conventional alloy. Green denotes the corrosion-prone Gamma II, the result of tin reacting with mercury.

DISPERSALLOY[®]*: WITH CORROSION-RESISTANCE

SILVER/COPPER/TIN

During trituration tin is attracted and "locked in" by the silver/copper eutectic spheres (light orange area of electron probe microphoto). Virtually no tin is left to react with mercury and form corrosion-prone Gamma II.

Silver/Copper eutectic particles reinforce DISPERSALLOY* by forming an intermetallic bond with matrix. This bond is stronger than the matrix itself⁹.

Corrosion-resistant matrix: DISPERSALLOY* is essentially free of corrosion-prone Gamma II component found in conventional amalgams. (Light blue: Silver/Mercury; Dark blue: Silver/Tin.)

Amalgams vary in the shape and size of their particles. But . . . until DISPERSALLOY* . . . the alloy composition of most amalgam alloys followed the chemistry of G. V. Black's formula, introduced about 1900¹². "Spherical" alloys are conventional alloys with round particles.

DISPERSALLOY* introduces a fundamental change. It virtually eliminates the weak phase in conventional amalgams: the corrosion-prone Gamma II (tin-mer-

A CONVENTIONAL ALLOY: WITH CORROSION-PRONE

MERCURY/TIN (Gamma II)

Gamma II, the weak phase in conventional amalgams, is revealed by green area in electron probe microphoto. It may be as much as 10% in some conventional amalgams^{2, 3}.

cury) phase. It's done by removing a large percentage of the tin from conventional amalgam formulations, and substituting with silver/copper eutectic particles. During trituration, the copper attracts and chemically "locks in" the remaining tin. Virtually none is left free to react with mercury. Gamma II is essentially eliminated. The result: the first virtually corrosion-free amalgam proved superior in clinical performance.

Johnson & Johnson
DENTAL DIVISION DENTAIRE
MONTRÉAL, TORONTO, VANCOUVER
CANADA

Radiologic consulting service at UBC

A news item entitled "UBC provides consultative radiological service for practising dentists" appeared on page 245 of the May, 1976 issue of the *Journal*. I am a little disturbed at the possibly misleading impression the story may have given to readers across the country.

In fairness to Dr. H. M. Worth and to my radiological friends in other centres throughout Canada, it should be clearly understood that this service was intended merely for users in the geographic area normally served by UBC. That is, by and large, dentists in the province of British Columbia.

I appreciate the difficulty which you must have in checking detail contained within this type of news reporting. However, it is my understanding that the direct authorship of this news paragraph did not originate with anyone within the Department of Oral Medicine at UBC and I would be concerned about its effect upon Faculty in similar departments across Canada. To

fail to describe the geographic boundaries from which we would legitimately be expecting to draw such material could give the impression that we were poaching upon the preserves of other universities, as well as casting unwarranted aspersions upon the radiological competence of our colleagues in those areas.

I would be grateful if this omission could be rectified.

*J. D. Spouge,
Professor and Head,
Department of Oral Medicine,
University of British Columbia*

Through a regrettable oversight the announcement which appeared in a recent edition of the *Journal* concerning an invitation to practitioners to submit interesting radiographic material to the Faculty of Dentistry at the University of British Columbia on a consultative

basis, was not submitted to me prior to publication.

While I am perfectly willing, interested and honored to see radiographic material from anywhere and the Faculty of Dentistry is equally eager to receive teaching material, my colleagues and myself are fully aware that other provinces have dental schools and an equal desire to obtain radiographic material, and they have consultant oral radiologists no less able to provide a Consultant Radiologic Service and this they do. This I wish to acknowledge and to state unequivocally lest a non-existent disrespect may appear to be implicit in the announcement.

*Harry M. Worth,
Vancouver, B.C.*

Editor's note: We are sorry for any embarrassment this news item in the *Journal* may have caused. However, it did come to us in the form of a news release prepared for publication.

Dentistry in the news . . .

Alpha Omega study mission to Israel

The Third Annual Alpha Omega Study Mission to Israel attended the International Symposium on Geriatric Dentistry, May 19-20, 1976, at the Dental Division of the Faculty of Medicine, Tel-Aviv University.

Dentists representing almost every province in Canada attended the Mission, along with several American dentists. The five Canadian dentists who presented papers at the session were: David Cowan, Roger Ellis and Hart Levin, all of Toronto; Sheppard Margolese of Vancouver and Harold Samuels of Edmonton. Benjamin Mis-

hory of the Weizman Institute of Science of Israel presented a highly interesting basic research paper on "The Density Distribution of the Negative Charges on the Plasma Membrane of Young and Old Cells."

The group was taken on a tour of the Jerusalem Dental School, highlighted by a visit to the Maxillo-Facial Prosthesis Section. Here, dentists, technicians and plastic surgeons were actively involved in a team effort in rebuilding, from various synthetic materials, the ears, noses, chins, etc. of wounded Israeli soldiers. This service

is also available to patients suffering severe facial disfigurements caused by malignancies.

The group also visited a dental clinic at an air base, which provided an opportunity to discuss the special problems to be considered when carrying out dental procedures for jet fighter pilots.

The Fourth Annual Study Mission will leave for Israel on May 12, 1977, for a 17-day tour. Participation will be limited. For further information contact: Dr. Hart Levin, 2006 Bathurst Street, Toronto.



The CLASSIC[™] Chair can make your patient feel better about dentistry.

When a patient enters your operatory and sees the CLASSIC for the first time, she may well get the idea that somehow this appointment is going to be different from all the others.

Because the CLASSIC, among many other things, is an elegant piece of furniture.

Then she is seated. Normally, naturally, as in a favorite chair at home. The CLASSIC Chair's unique swivel seat and back eliminate the awkward leg straddle of other contour chairs.

And right away you have established a rapport that is most helpful in dental treatment. Apprehension tends to disappear. Calm and confidence prevail. You

and your patient can discuss the oral health program with a deeper sense of mutual understanding and cooperation.

All this of course is prelude to the treatment itself. And as treatment begins the CLASSIC proves itself a great *operating* chair. You can precisely position the patient for every procedure of two-handed and four-handed dentistry. The articulating headrest gives you optimum visual and manual access to all quadrants of the oral cavity.

What's it worth to have a more responsive, more receptive patient? Isn't *patient tension* one of the most difficult and most tiring aspects of the profession?

Well, the CLASSIC won't exactly make dentistry entertainment. But it does help to make things easier for your patient and this makes every appointment a little easier on you.

Is there a better reason to tell your dealer you want to see the CLASSIC?



The CLASSIC[™]
by Dentsply.[®]

**DENTSPLY
Equipment**

D Dentsply International, York, PA

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See the CLASSIC[™] at Dentsply Booths 54, 55, 56—CDA National Convention, September 12-15.

STATUS OF EDUCATIONAL PROGRAMS

The following list of programs evaluated by the Canadian Dental Association's Council on Education shows the status of various programs in universities and colleges across Canada as of May, 1976. Graduate and postgraduate programs in CDA recognized specialties will be published next month.

Undergraduate dental programs

Name of university	Accreditation status awarded		
Faculty of Dentistry University of British Columbia	Approval	Algonquin College of Applied Arts and Technology	Provisional approval
Faculty of Dentistry University of Alberta	Approval	Program of Dental Hygiene University of Montreal	Approval
College of Dentistry University of Saskatchewan	Provisional approval	School of Dental Hygiene Dalhousie University	Approval
Faculty of Dentistry University of Manitoba	Approval		
Faculty of Dentistry University of Western Ontario	Approval		
Faculty of Dentistry University of Toronto	Approval		
Faculty of Dentistry McGill University	Approval		
Faculty of Dentistry University of Montreal	Approval		
School of Dentistry Laval University	Provisional approval		
Faculty of Dentistry University of Montreal	Approval		
School of Dentistry Laval University	Provisional approval		
Faculty of Dentistry Dalhousie University	Approval		

Dental assisting programs

Name of college	Accreditation status awarded
Okanagan College, B.C.	Approval
Northern Alberta Institute of Technology	Approval
Southern Alberta Institute of Technology	Approval
Kelsey Institute of Applied Arts and Technology, Sask.	Approval
Red River Community College, Man.	Approval
Canadore College of Applied Arts and Technology, Ont.	Approval
Confederation College of Applied Arts and Technology, Ont.	Approval
Fanshawe College of Applied Arts and Technology, Ont.	Approval
George Brown College of Applied Arts and Technology, Ont.	Approval
Niagara College of Applied Arts and Technology, Ont.	Approval
St. Clair College of Applied Arts and Technology, Ont.	Approval
Georgian College of Applied Arts and Technology, Ont.	Provisional approval
Algonquin College of Applied Arts and Technology, Ont.	Approval
Canadian Armed Forces Dental School, Base Borden, Ont.	Approval
Nova Scotia Institute of Technology	Approval
Holland College, P.E.I.	Approval

Undergraduate dental hygiene programs

Name of university	Accreditation status awarded
Program of Dental Hygiene University of British Columbia	Approval
School of Dental Hygiene University of Alberta	Approval
School of Dental Hygiene University of Manitoba	Approval
Division of Dental Hygiene University of Toronto	Approval
Dental Hygiene Program (Dental therapist level 6B) Canadian Armed Forces Dental School, Base Borden	Approval



“...but
if you feel
any pain,
take one or two
N 222 * tablets.”

Not every patient needs an analgesic after dental care — but some do, even though you have done everything possible to avoid any patient discomfort.

When a patient is in pain, or when there is a possibility that pain will occur later, suggest N 222 * tablets.

222 * is a reliable analgesic — you and your patient can depend on it.

INDICATIONS: For relief of mild to moderate pain, fever and inflammation as in influenza, common cold, low back and neck pain, headache, trauma, following dental and surgical procedures.

DOSAGE: Adults — 1 or 2 tablets one to three times daily; Children's dosage, when recommended by a physician: 10 to 14 years, one tablet, one to three times daily; 5 to 10 years, one-half tablet, one to three times daily.

CONTRAINDICATIONS: Gastrointestinal ulceration and sensitivity to any of the components.

WARNINGS: Salicylates increase the effects of anticoagulants. Caution is necessary when salicylates and anticoagulants are prescribed concurrently. Also, salicylates may depress the concentration of prothrombin in the plasma. Large doses of salicylates may affect insulin requirements of diabetics. Salicylates may potentiate sulfonylurea hypoglycemic agents. Analgesic abuse (excessive and prolonged therapy) has been associated with nephropathy. TO AVOID

ACCIDENTAL POISONING ACETYLSALICYLIC ACID PREPARATIONS MUST BE KEPT WELL OUT OF REACH OF CHILDREN.

PRECAUTIONS: Give with caution to patients with asthma, other allergic conditions, bleeding tendencies, or hypoprothrombinemia. Salicylates can produce changes in thyroid function tests.

Observe care in use of codeine, although tolerance and addiction are rare. Give codeine with caution to patients with severe respiratory depression. Its depressant effect may be enhanced by concurrent administration of sedatives and tranquilizers.

ADVERSE REACTIONS: *Acetylsalicylic acid:* Gastrointestinal: dyspepsia, heartburn, nausea, vomiting, diarrhea, gastrointestinal ulceration and bleeding. *Ear reactions:* tinnitus, hearing loss. *Hematologic:* anemia, leukopenia, thrombocytopenia, purpura. *Dermatologic and Hypersensitivity:* urticaria, angioedema, pruritus, various skin eruptions, asthma and anaphylaxis. *Miscellaneous:* mental confusion, drowsiness, sweating and thirst.

Codeine: Average or large doses may cause various gastrointestinal symptoms such as nausea, vomiting and constipation.

Caffeine: May cause nausea, nervousness, insomnia, headache, vomiting, palpitation, vertigo, muscle tremor, sensory disturbances, excessive diuresis in sensitive patients. Large doses may cause gastric ulceration.

FULL INFORMATION AVAILABLE ON REQUEST

HOW SUPPLIED

N 222* Tablets — White, scored, engraved 222 on one side. Each tablet contains: acetylsalicylic acid 375 mg, caffeine citrate 30 mg, codeine phosphate 8 mg. Available in tubes of 12; bottles of 40 and 100; also bottles of 60 with safety cap.

*Trademark



(MC-390a)

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KIRKLAND (MONTREAL) CANADA



CDA NATIONAL CONVENTION EDMONTON SEPTEMBER 12-15, 1976



A major drawing card for any convention is its location. This year, Edmonton will host the Canadian Dental Association's National Convention, September 12-15, and that should prove a very popular drawing card indeed.

Canada's fourth largest city and the capital of Alberta, Edmonton often startles visitors who don't expect a booming, cosmopolitan centre of half-a-million people to be 350 miles north of the United States border. But it's there and it's certainly cosmopolitan.

Edmonton is an inviting study in contrasts with its high-rise towers, the continent's first Moslem Mosque, the feeling of wide open spaces even in the heart of the city, the ultra-modern public library, the drama and comedy of live theatre, an exciting new art gallery, and the Jubilee Auditorium as a centre for the performing arts.

It's a city built by people of 36 dif-

ferent ethnic origins from a hundred different countries, and chosen by the West German Academy as a model of good city planning with broad streets and a spreading network of pedways overhead and below ground. It's a city safe for strolling night or day.

Edmonton is pulsing, dynamic and prosperous. It's an exciting city where you'll never run out of things to do and see. For the children, Storyland Zoo is a fascinating excursion with birds and small animals housed in a Mother Goose setting entered through castle gates.

Fort Edmonton Park tells the story of the area from the fur trade to modern times. The 178 acre site includes a reconstruction of the Fort from the plans of 1846 and sketches by artist Paul Kane, an 1885 farm, York boats on the nearby North Saskatchewan River, a street of houses and shops from a pioneer town, and much more.

The beautiful new Edmonton Coliseum seats 16,000 spectators for top sporting, musical and variety shows. Another attraction is the Queen Elizabeth Planetarium, the first in Canada. The Provincial Museum and Archives also offer intriguing displays, such as a meteorite the Indians used to worship.

Edmonton is also the centre of activity for the Canadian oil industry. The evidence attesting to that fact is all around you, from the oil derrick on the southern entrance to the city, the oil company office buildings, to "refinery row", a complex of oil refineries in the east end of the city.

Last, but not least, Edmonton offers excellent shopping, music, and fine restaurants, including one of the world's biggest revolving restaurants.

Come to the 1976 CDA National Convention and see what this famous Canadian city is all about.

Good enough to be the only one.



Instead of being a second toothpaste, Sensodyne can be recommended as the only toothpaste a patient with sensitive teeth need use. The strontium ion in Sensodyne's formula is absorbed to the dentin and cementum to block pain impulses.

Independent tests* have also proven Sensodyne's polishing effectiveness and ability to aid in removing plaque. So using Sensodyne as an adjunctive toothpaste is unnecessary.

And Sensodyne's pleasant flavour encourages regular brushing. Combining

Quality products for dental health.

Sensodyne's two-way action dentifrice and the Py-co-pay Softex toothbrush provides the ultimate in preventive care for hypersensitive teeth.

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*Reference available on request.

Edmonton "trivia"

- The Edmonton area has one of the lowest pollen counts in the world.
- The entire valley of the North Saskatchewan River, which wends its zigzag course through the city, has been designated for parks and recreational use.
- The Marigold is Edmonton's official flower.
- Edmonton, along with Montreal and Paris, France, were the only cities to take an active part in Expo '67.
- The West German Academy of City and Regional Planning has chosen Edmonton as a model in modern urban planning and uses it as a case study.
- Edmonton has one of the highest ratios of motor vehicles to population in North America but its wide thoroughfares make traffic tie-ups seldom and short-lived.
- Edmonton is the Oil Capital of Canada. There are more than 7,000 producing oil wells within a 100-mile radius of the city and more than 10,000 miles of pipelines radiating from their refinery area.
- Edmonton International Speedway is one of the finest auto racing complexes in North America.
- Edmonton is governed by a mayor and 12 aldermen whose instructions are carried out by a board of city commissioners.
- There is a daily average of 6.1 hours of sunshine.
- Edmonton is the most inexpensive major city in Canada in which to live; no sales tax, and no amusement tax.
- It is the research capital of Alberta.

Hospitality hour for U of A graduates

All University of Alberta graduates and their spouses are invited to attend the Hospitality Hour sponsored by the University's Dental Alumni Association on Monday, September 13, at the Hotel Macdonald from 5:00 to 6:00 p.m. Former Deans will be present.

WELCOME FROM THE PREMIER



On behalf of the Government of Alberta, I am pleased to welcome delegates and special visitors to the Annual Conference of the Canadian Dental Association.

Alberta is an interesting and diversified province, and I sincerely hope that many of you will have an opportunity to enjoy the variety of our parklands, lake country, forests, foothills, mountains, badlands and prairie.

We are equally proud of our heritage and our friendly, hospitable people, and we welcome the opportunity to share our young and dynamic society's accomplishments with you.

Please accept my best wishes for a successful Convention.

Peter Lougheed
Premier of Alberta

GREETINGS FROM THE MAYOR



On behalf of the people of Edmonton, it is my pleasure to extend greetings and good wishes to all delegates attending the National Convention of the Canadian Dental Association in Edmonton, September 12-15, 1976.

Those who attended the National Convention in 1964 will note the many prominent changes to our City over the past decade. To those doctors making their first visit to our beautiful City of 500,000 people, the capital of Alberta has much to offer aside from pleasant, efficient conference facilities. The scores of points of interest and our many clubs, lounges and restaurants are modern, enjoyable and entertaining.

We wish you every success in your deliberations and may you experience the warm, western hospitality of our people throughout your stay.

T. J. "Terry" Cavanagh
Mayor of Edmonton

CDA CONGRESS NATIONAL ADC EDMONTON SEPT. 12-15, 1976 CONVENTION

CONDENSED PROGRAM

MONDAY — SEPTEMBER 13 ARMED FORCES DAY

MORNING

1. Table clinics

2. **Lt. Col. Andrews**, Borden
Maj. Jones, Trenton
Perspective in periodontics

3. **Lt. Col. McQueen**, Borden
Lt. Col. Begin, Montreal
A preventive program that works

4. **Maj. McCallum**, Borden
Maj. Harreman, Victoria
Oral surgery

5. **Maj. Budzinski**, Borden
Diagnosis and treatment aids
for G.P.'s

6. Grieve Memorial Lecture
Dr. R. A. Riedel, Seattle
Why extraction in relation to
orthodontic treatment

AFTERNOON

1. Table clinics

2. **Lt. Col. Andrews**, Borden
Maj. Jones, Trenton
Perspective in periodontics

3. **Lt. Col. McQueen**, Borden
Lt. Col. Begin, Montreal
A preventive program that works

ROOM

Alberta
9:00–11:30

Manitoba
9:00–12:00

Saskatchewan
9:00–12:00

British Columbia
9:00–12:00

Drayton-Turner
9:00–11:30

Yukon
10:30–12:00

ROOM

Alberta
1:30–4:30

Manitoba
1:30–4:30

Saskatchewan
1:30–4:30

4. **Maj. McCallum**, Borden
Maj. Harreman, Victoria
Oral surgery

5. **Maj. Cragg**, Borden
Removable prosthodontics

6. **Lt. Col. Bourget**, Winnipeg
Photography in dentistry

British Columbia
1:30–4:30

Yukon
1:30–4:30

Drayton-Turner
1:30–4:30

TUESDAY — SEPTEMBER 14

MORNING

1. Table clinics

2. **Dr. G. J. Christansen**, Utah
Recent advances in fixed prosthodontics and operative dentistry
— Part I

3. **Dr. S. Wei**, Iowa
Fluoride therapy in dental practice

4. **Dr. H. Ptack**, Montreal
Esthetics and chairside characterizations of fixed partial dentures

5. **Dr. B. Corenblum**, Calgary
Dentist's role in hypertension

ROOM

Alberta
9:00–11:30

Manitoba and
Saskatchewan
9:00–12:00

British Columbia
9:00–11:30

Yukon
9:00–11:30

Drayton-Turner
9:30–11:00

AFTERNOON

1. Table clinics

2. **Dr. G. J. Christansen**, Utah
Recent advances in fixed prosthodontics and operative dentistry
— Part II

ROOM

Alberta
1:30–4:30

Manitoba and
Saskatchewan
1:30–4:30



All clinical events will take place at the Edmonton Plaza Hotel, except those sessions scheduled for Wednesday afternoon at the Hotel Macdonald.

- | | |
|-------------------------------------|------------------|
| 3. Dr. B. Bibby , Rochester | British Columbia |
| Status of snacks (For the ladies) | 1:30-3:30 |
| 4. Dr. K. Neuman , Vancouver | Yukon |
| Dr. B. Sipko , Vancouver | 1:30-4:30 |
| Practice Management | |
| 5. Mr. A. Malfair , Edmonton | Drayton-Turner |
| Trusts, wills and estate planning | 3:30-4:30 |
| (For the ladies) | |

WEDNESDAY — SEPTEMBER 15

MORNING

ROOM

- | | |
|---------------------------------------|------------------|
| 1. Table clinics | Alberta |
| | 9:00-11:30 |
| 2. RCD Lecture — Panel | Yukon |
| Dr. G. Sperber , Moderator, | 9:00-11:30 |
| Edmonton | |
| Dr. R. D. Haryett , Edmonton | |
| Dr. D. Arora , Saskatchewan | |
| Dr. M. Charendoff , Toronto | |
| Problems of the anterior segment | |
| 3. Dr. D. Chaytor , Halifax | British Columbia |
| Dr. V. Shaffner , Halifax | 9:00-11:30 |
| Integrated occlusion | |
| 4. Dr. P. L. Samis , Montreal | Drayton-Turner |
| A new system of dental identification | 10:00-11:00 |
| by x-ray detectable inserts | |

AFTERNOON

ROOM

(Hotel Macdonald)

- | | |
|--|---------------|
| 1. Dr. C. Baker , Winnipeg | Rupert's Land |
| Overview of radiology for the G.P. | 2:00-4:30 |
| 2. Dean D. Miller , Ph.D., Nevada | Eldorado |
| Fitness for busy people | 2:00-4:30 |



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more efficient operatory
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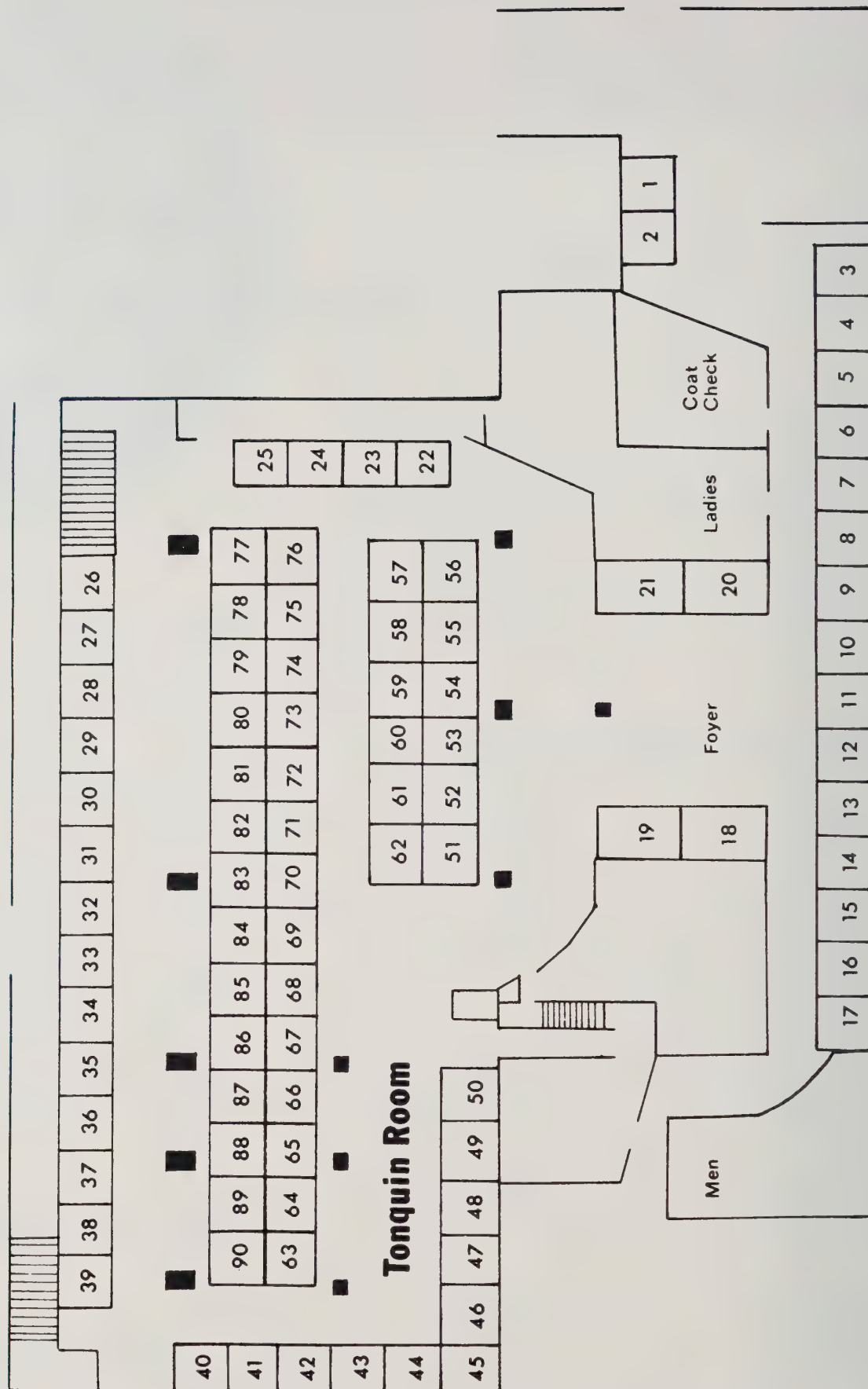
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. . . SMALL ENOUGH TO
SERVE YOU PERSONALLY

CDA EXHIBITS FLOOR PLAN — HOTEL MACDONALD, MEZZANINE



EXHIBITORS

EXHIBITOR	BOOTH	EXHIBITOR	BOOTH
A-B		M-N	
Amalgamated Dental	48	Mardan Business Systems Ltd.	22,23
American Dental Mfg. Co.	58	Marpo-Dent Products	32
Ash Temple Ltd.	68,69	McNeil Laboratories (Canada) Ltd.	12
Astra Chemicals Ltd.	70	Medi-Dent Service	10,11
Ando Laboratories Ltd.	53	Medtel Marketing Ltd.	16
Best's Professional Supply Co. Ltd.	20,21	Midwest American	24,25
Block Drug Co. (Canada) Ltd.	77	Modular Custom Cabinets	87
John O. Butler Co.	29	3M Canada Ltd.	63
		Nobilium of Canada	42
C		Novocal — Buffalo Dental Mfg. Co. Canada	62
Canadent Mfg. Ltd.	82	North Pacific Dental, Inc.	28
Canadian Dental Supply Ltd.	1	O-S	
The L. D. Caulk Co. of Canada	51	Ontario Blue Cross/for the Canadian Council of Blue Cross Plans	3,4
Ceramic Dental Laboratories Ltd.	80	Oratel Division of McGaw Supply Ltd.	31
Cerum Dental Supplies Ltd.	79	Professional Film Distributors Ltd.	88
CML — Medical Leasing Service	7	Professional Pharmaceutical Corp.	74
CNA Assurance Co. and Imperial Life Insurance Co. of Canada	34	Professional Services Division, Procter & Gamble Co. of Canada Ltd.	5,6
Colgate-Palmolive Co.	49,50	Rathmann & St. John Orthodontics Laboratory	17
Cook-Waite/Green Dental Products/ Winthrop Laboratories	44	Rocky Mountain Orthodontics Canada Ltd.	81
Cooper Laboratories Ltd.	15	W. B. Saunders Co. of Canada Ltd.	13
Cox Systems Ltd.	65,66	Shaw Laboratories	85
Cross Canada Distributors Ltd.	59	Siemens Canada Ltd.	72,73
D-L		Solid State Systems Inc.	89
Denco, Division of McGraw Supply Ltd.	52	Star Dental Mfg. Co. Inc.	30
Dental Hygiene Co.	60	T-Y	
Dentsply Canada Ltd.	54,55,56	Technodent Industries Ltd.	43
Fraser Sweatman (Canada) Ltd.	64	Tri-Hawk International Traders Ltd.	84
Healtco (Canada) Ltd. United Dental Supply Division	90	Uniform World	2
Hoffmann-La Roche Ltd.	61	United Dental Supply Corp.	40,41
Inland Dental Distributors Ltd.	26,27	D. E. Wahler Ltd.	75,76
Inter-Unitek Canada Ltd.	35	Warner-Lambert (Canada) Ltd.	33
Johnson & Johnson Ltd.	8,9	Weil Dental Supplies Ltd.	18,19
Kerr Canada	67	Western Metallurgical Ltd.	37,38,39
Kodak Canada Ltd.	71	S. S. White Dental Division, Penwalt of Canada Ltd.	45,46
Lux & Zwingerberger Ltd.	57	Year Book Medical Publishers	14

GREETINGS FROM THE CONVENTIONS COMMITTEES



It is a pleasure to welcome you to Edmonton on behalf of our convention committees. We have sought to offer a program which will be rewarding and enjoyable. The scientific topics are timely and cover a broad spectrum of dentistry and our social program should appeal to everyone. We have enjoyed preparing this convention for you and sincerely hope that your visit with us in Edmonton will be an educational and joyful experience.

*Dr. G. T. Lindskoog,
Local Arrangements Chairman*

An exciting social program

The exciting social program lined up for the 1976 Convention is highlighted by four main events:

Opening ceremonies: Sunday, September 12

All dentists who have registered for the convention are invited, along with their guests, to attend the opening ceremonies free of charge. The ceremonies will be held in the Alberta Room of the Chateau Lacombe. The greetings and messages from national and international dignitaries will be followed by an evening of entertainment featuring the Vos Family and an excellent dance band. Dress is optional and a cash bar will be available.

Klondike Night: Monday, September 13

Join the good-natured fun of being a Klondiker and live the part by renting or making a costume for the occasion. Buses will transport you out to Field House where the chuck wagon will dish out steaks, homemade beans, baked potatoes, coleslaw and coffee. You can relax to the music and antics of the Shirley Adams Dancers, Klondike

Kate and Klondike Mike. Presentations will be made of the Golden Garter and the Lady of the Plume Awards, followed by dance music for your entertainment. Tickets for Klondike Night are available at \$15.00 per person.

President's Ball: Tuesday, September 14

Guests will be piped in to the dining room for a feast consisting of Roast Alberta Beef with all the trimmings, wine and coffee. Round tables with seating for 10 will complement the congenial atmosphere, as will the background music provided by a harpist. The evening's entertainment will be followed by dancing. Dress is semi-formal and a cash bar will be available. Tickets for the President's Ball are \$20.00 per person.

Installation Luncheon: Wednesday, September 15

The new CDA president will be installed at the official luncheon to be held at noon in the Ballroom of the Edmonton Plaza Hotel. Tickets for the Installation Luncheon are free, but the number available is limited.

Ladies' program

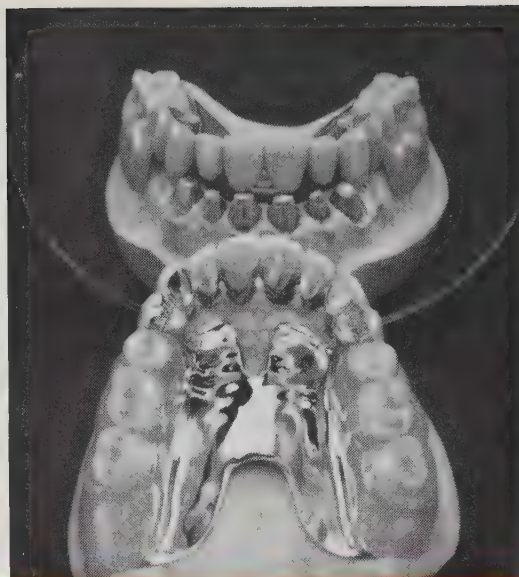
Ladies attending the CDA Convention in Edmonton will find the special program arranged for them to be both interesting and stimulating.

On Monday, September 12, a brunch will be held at the Mayfield Inn and will be followed by a tour of Fort Edmonton. Buses will pick up the ladies at the Edmonton Plaza, Macdonald and Chateau Lacombe Hotels for the trip to the Mayfield Inn where fruit punch, cocktails and a buffet brunch will be served. Roving violinists or guitarists will provide entertainment. Buses will then transport the ladies to Fort Edmonton for a two-hour tour of this historical site. Tickets are available at \$7.00 per person.

On Tuesday, September 13, a special luncheon will be held at the Chateau Lacombe Hotel. The event will get underway with a pre-luncheon cocktail hour, complete with entertainment provided by a pianist. The luncheon itself features a gourmet menu and will be followed by a skit presented by the Edmonton dental wives. Tickets are available at \$9.00 per person.

Also on Tuesday, three special lectures have been included in the convention's scientific program which will be of special interest to the ladies. The first lecture, entitled "Dentist's role in hypertension", will be presented by Dr. B. Corenblum of Calgary in the Drayton-Turner room of the Edmonton Plaza Hotel from 9.30-11.00. Blood pressures will be taken prior to this lecture. The second lecture, scheduled from 1.30-3.30, will deal with the "Status of snacks" and will be presented by Dr. B. Bibby of Rochester in the British Columbia room of the same hotel. The third session, on trusts, wills and estate planning, will be presented by Mr. D. Malfair of Canada Trust in Edmonton from 3.30-4.30 in the Drayton-Turner room.

Another lecture which will be of interest to the ladies is scheduled for Wednesday afternoon at the Hotel Macdonald. It is entitled "Fitness for busy people" and will be presented by Dean D. Miller, Ph.D. of Nevada.



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FITNESS FOR BUSY PEOPLE IS THEME OF PRESENTATION

One of America's most sought after lecturers will be on hand at the convention to deal with the subject of "Fitness for busy people". Dean D. Miller, who received his Ph.D. from the University of Southern California, is the National Director of the Physical Fitness Institute of America.

Dr. Miller spent nine years as Director of Physiological Research in Bio-Astronautics for NASA and developed the exercise program used in the Apollo space shots. He served for 10 years as President of American Physical Fitness and worked with the conditioning of the U.S. Olympic teams in 1968 and 1972. Dr. Miller has spent a total of 20 years studying the effect of exercise on the

human body and is the developer of the Isokinetic principle of exercise.

He has lectured in all 50 states as well as in many foreign countries to professional groups, athletes and coaching staffs, and management and employee groups at major industries.

Dr. Miller is well known to the media with more than 700 radio and TV appearances to his credit. His principle of exercise is presently being used by more than 1,000 high schools, 960 colleges, 83 professional athletic teams, hospitals, rehabilitation centres, military organizations, police and fire departments, state highway patrols and the American astronauts.

HYPERTENSION AND THE DENTIST

"The dentist's role in hypertension" is the title of a presentation to be given by Dr. Bernard Corenblum of Calgary during the scientific program at the CDA convention.

Dr. Corenblum received his medical degree from the University of Alberta in 1971, ranking third in a class of 105 students. Postgraduate studies were taken at the Toronto General Hospital and the University of Alberta Hospital. From 1974-75, Dr. Corenblum served as a Medical Research Council Fellow at the University of Toronto and in

1975-76 was Chief Resident in Medicine at Calgary's Foothills Hospital. He became a Fellow of the Royal College of Physicians of Canada in 1975.

In addition to being the staff endocrinologist at the Foothills Hospital, Dr. Corenblum also serves as the endocrinologist for the hospital's hypertension and infertility clinics. He is assistant professor of medicine, part-time, at the University of Alberta, and the author of many scientific articles published in medical journals.

CDNAA CONVENTION AGENDA

The 1976 Convention of the Canadian Dental Nurses and Assistants Association will get underway Sunday, September 12, in Edmonton with registration and attendance at the CDA opening ceremonies.

CDNAA will hold its own opening ceremonies on Monday morning, with the balance of the day free for a tour of Edmonton, shopping and attendance at the Klondike Night festivities, sponsored by CDA.

Tuesday will feature three lectures: Doug Young on Cox Systems; Dr. Kovitz on hypnosis; and a dental educators conference. Brunch will be held at the La Ronde revolving restaurant and, in the evening, delegates will travel to Stage West for an evening of dining and live theatre.

The General Business Meeting will be held all day Wednesday with the installation banquet and the presentation of awards scheduled for the evening.

Hygienists announce convention program

The Canadian Dental Hygienists Association will be holding their 1976 Annual Convention in conjunction with the CDA National Convention in Edmonton, September 12-15. Edmonton's Holiday Inn will serve as the CDHA convention headquarters.

Sunday has been set aside for the CDHA Board Meeting, registration of delegates and class reunions, with the evening free to allow delegates to attend the CDA's opening ceremonies. Convention activities will officially get underway with a "welcome breakfast" on Monday morning, followed by the opening ceremonies. Then, Dr. S. Hoshizaki will present an "Orthodontic overview". The emphasis of his lecture will be on preventive and interceptive techniques, recognition of appliances, and orthodontic possibilities for adults.

Drs. M. Mickleborough and R. Warren will conduct the afternoon session with a presentation on the management of dental emergencies. They will discuss pre-treatment evaluation of the patient and the management of actual emergencies.

On Tuesday morning, Dr. G. Fitzsimmons will examine the subject of stress and the manner in which it affects the dental hygienist. The afternoon session will feature a constituents' workshop and table clinics presented by hygienists and dental assistants.

"Nutrition: All the things you always wanted to know about nutrition, but were afraid to ask" is the title of a presentation to be made by Teresa Bossé on Wednesday morning. This session will be followed by Joan Conklin, speaking on "The COP system — What's it all about?"

The final speaker on the Wednesday morning program will be Barbara Gitzel who will discuss audio visual aids for patient instruction.

The CDHA scientific program will be complemented by a well-rounded and interesting social program guaranteed to appeal to everyone.



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LES RESTRICTIONS BUDGETAIRES RETARDENT LE REGIME DE SOINS DENTAIRES “DENTICARE” EN ONTARIO

L'Association dentaire de l'Ontario a souligné que ce sont les restrictions budgétaires du gouvernement provincial et non l'insuffisance de dentistes qui ont retardé la mise en opération d'un régime d'assurance dentaire dans la province. Cette déclaration constituait la réponse aux remarques faites par le Dr Bette Stephenson, ministre par interim de la Santé de l'Ontario au cours d'un discours prononcé lors de la réunion annuelle du printemps de l'ADO tenue à Toronto.

Le nouveau président de l'ADO, le Dr R. F. Evans, a déclaré que les membres de l'Association étaient déçus par les propos du Dr Stephenson, qui attribuait le retard porté à la mise en oeuvre du régime à une insuffisance de dentistes. Il a affirmé qu'au cours des dernières années, les dentistes de l'Ontario avaient collaboré avec le gouvernement pour étudier si un régime de soins dentaires était effectivement nécessaire dans la province, le coût d'un tel programme et la meilleure façon de le mettre à exécution. Le premier ministre de la province, Monsieur William Davis, au cours d'un discours prononcé lors de l'assemblée de l'ADO de 1975, a déclaré que le régime de soins dentaires pour les enfants proposé par l'Association était “judicieux et es-

timable”, mais que les restrictions des dépenses portant sur la santé empêcheraient la mise en opération de ce régime dans un avenir prévisible.

Le Dr Evans a continué: “Depuis lors, nous avons assisté à la fermeture de plusieurs hôpitaux et à diverses graves conséquences du programme de restrictions. Cependant, au cours de cette même période, le ministre par interim de la Santé attribue la responsabilité de la non mise en opération d'un régime de soins dentaires, dont le coût s'élèvera à un minimum de \$180 millions sur une période de cinq ans, au fait qu'il existe une insuffisance d'environ 70 dentistes dans la province pour desservir chacune de ses régions géographiques.”

Il a ajouté que les membres de la profession dentaire font de gros efforts pour contrecarrer cette insuffisance et qu'ils seront sans doute en mesure d'annoncer de nouveaux projets concernant les services procurés aux régions éloignées plus tard cette année.

Le président de l'ADO a également signalé que “l'aspect le plus troublant” des remarques faites par le Dr Stephenson se rapportait au fait qu'elle ne tenait pas du tout compte de l'obstacle effectif et réel s'opposant à la création d'un régime de soins dentaires en ce moment

— soit le manque général de compréhension et de connaissances concernant les méthodes préventives d'hygiène buccale parmi les habitants de la province.

Jusqu'à ce que les gens apprennent à bien prendre soin de leurs dents, tout régime de soins dentaires sera un exercice “futile et coûteux”, destiné à réparer les dommages causés et constamment renouvelés par les troubles et maladies dentaires qui agissent entre les visites chez le dentiste.

Lors de son allocution présidentielle, le Dr Evans a également déclaré que l'expérience en Grande-Bretagne souligne nettement, à l'aide de preuves documentaires, qu'un régime de soins dentaires restaurateur, non précédé d'un programme éducatif, n'apporte aucune amélioration à la santé buccale de la population.

En ce qui concerne un programme éducatif, les Drs Evans et John C. Gillies, directeur exécutif de l'ADO, ont déclaré que l'Association s'était autrefois entretenue avec le ministre de la Santé, Monsieur Frank Miller, au sujet d'un vaste programme éducatif dans le domaine de la santé dentaire subventionné par le gouvernement, et que ce dernier avait témoigné un grand intérêt.

CHEF DU SERVICE DE FLUORATION DE L'ADC

Lorsque l'Association dentaire canadienne déménagera à Ottawa le mois prochain, Monsieur Lloyd Bowen, chef du Service de fluoruration de l'ADC restera à Toronto dans un bureau mis à sa disposition par l'Association dentaire de l'Ontario.

M. Bowen est reconnu à titre d'autorité au Canada en matière de fluoruration dans ce pays. Avant de faire partie du personnel de l'ADC en 1969, il a servi à titre de secrétaire exécutif de la Ligue de la santé du Comité canadien national sur la fluoruration. Il est actuellement se-

crétaire exécutif honoraire de ce même comité.

Les dentistes qui désirent obtenir des renseignements sur la fluoruration sont invités à se mettre en rapport avec M. Bowen, 234 rue St. George, Toronto M5R 2P2.



CONGRES NATIONAL DE L'ADC EDMONTON DU 12 AU 15 SEPTEMBRE, 1976

Radiologie '76: équipement, technique et interprétation

Le Dr C. G. Baker, chef du département de Radiologie à la faculté dentaire de l'Université du Manitoba et président de l'Académie canadienne de radiologie buccale, dirigera un atelier destiné à clarifier la confusion qui règne dans le domaine d'équipement et d'instruments radiographiques dentaires.

Les dentistes bénéficieront d'un maximum d'information diagnostique qui leur permettra d'arriver à une exposition minimale aux effets de la radiation. Les discussions qui auront lieu lors de cet atelier auront trait à l'équipement disponible, à l'état actuel de la radio-

graphie panoramique ainsi qu'aux techniques utilisées pour obtenir les meilleurs résultats possibles. En outre, la présentation de cas sera faite dans le but de développer des critères d'interprétation de radios intra-buccales aussi bien qu'extra-buccales.

Né au Manitoba, le Dr Baker a participé à d'importants projets de recherches; il a contribué à de nombreuses publications dentaires et il a fait des conférences à un grand nombre d'organismes de la santé au Canada et aux Etats-Unis.

Déjeuner d'entrée en fonction

L'un des événements saillants du congrès de l'ADC est le déjeuner d'entrée en fonctions, lorsque le nouveau président accepte officiellement son mandat pour le prochain exercice.

Le déjeuner d'entrée en fonctions pour 1976 aura lieu le mercredi 15 septembre à midi, à la Salle de bal de l'Hôtel Edmonton Plaza. Les billets pour ce déjeuner sont gratuits, mais leur nombre est limité. Commandez le vôtre dès aujourd'hui afin de ne pas être déçu.

Congrès national de l'ADC . . .

THERAPEUTIQUE AU FLUORIDE

La prévention constitue sans aucun doute aujourd'hui le thème principal de l'art dentaire. L'utilisation de fluorure dans les eaux domestiques publiques, sous forme de supplément diététique, d'application locale dans les cabinets dentaires, ou encore comme ingrédient dans les pâtes dentifrices et rince-bouche pour usage domestique, se situe à la base de ce thème. Les dentistes doivent faire preuve d'une compréhension approfondie des modes d'action du fluorure afin de pouvoir faire un choix judicieux parmi ces diverses techniques pour chaque patient qu'ils traitent.

La présentation du Dr Stephen Wei traitera de tous les domaines de thérapeutique au fluorure et grâce à sa participation personnelle à une grande partie de la recherche actuellement en cours, on peut tenir pour acquis son autorité en ce qui concerne toutes les connaissances actuelles dans ce domaine.

Le Dr Wei est professeur et chef du département de Pédiodontie de l'Université d'Iowa; il y consacre une grande partie de son temps à la recherche concernant l'emploi des fluorures dans l'exercice dentaire, les effets de la nutrition sur la santé des dents, les causes pathogènes et la prévention des caries dentaires.

OCCLUSION INTEGREE

Le traitement de patients partiellement édentés qui nécessitent une combinaison de prothèses présente souvent des difficultés en ce qui concerne l'ordre de succession des procédures et le développement d'une occlusion acceptable. Les Drs D. V. Chaytor et V. B. Shaffner feront une présentation destinée à surmonter ces difficultés. Les auteurs présenteront: (a) de simples techniques pour améliorer l'occlusion et (b) dix étapes faciles pour obtenir l'intégration de l'occlusion.

A l'aide d'une double commande de projecteur, les Drs Chaytor et Shaffner feront équipe pour présenter leurs tra-

vaux. Ils ont effectué conjointement un grand nombre des traitements présentés et chacun d'eux sera donc en mesure d'interpréter son propre domaine de spécialisation.

Ils illustreront les étapes d'amélioration de l'occlusion par l'application de techniques conservatrices à l'aide de couronnes, d'onlays, de prothèses fixes et de modification prothétique des dents.

Les Drs Chaytor et Shaffner sont tous deux diplômés de l'Université Dalhousie et y enseignent actuellement au Département de prosthodontie de la Faculté dentaire.

Symposium canadien sur l'occlusion

Le Symposium canadien sur l'occlusion tiendra une séance d'études les 12 et 13 septembre à l'Hôtel Château La-combe à Edmonton.

Trois spécialistes prendront la parole lors de cette séance: le Dr. Lawrence A. Weinberg de New York, qui traitera de "la fonction de l'articulation temporo-mandibulaire et de ses effets sur les concepts d'occlusion"; le Dr. Parker E. Mahan de Gainseville, Floride, parlera du "Diagnostic différentiel de la douleur crânio-faciale"; et le Dr Frank V. Celenza de New York, qui parlera de "Position centrique".

Cette séance d'études est ouverte à tous les participants du congrès national de l'ADC. Les personnes désireuses de participer au Symposium canadien sur l'occlusion verseront un supplément de \$100 pour assister aux réunions.

Prière de se mettre en rapport avec le Dr J. N. Nasedkin, 415, 925 West Georgia, Vancouver, V6C 1R5 — téléphone: (604) 682-2027 pour obtenir tous renseignements supplémentaires.

Collège royal des dentistes du Canada

La réunion annuelle d'affaires du Collège royal des dentistes du Canada aura lieu le 10 septembre au Salon Edmonton de l'Hôtel Macdonald. Le même soir, il y aura également un dîner et un bal au Faculty Club de l'Université de l'Alberta.

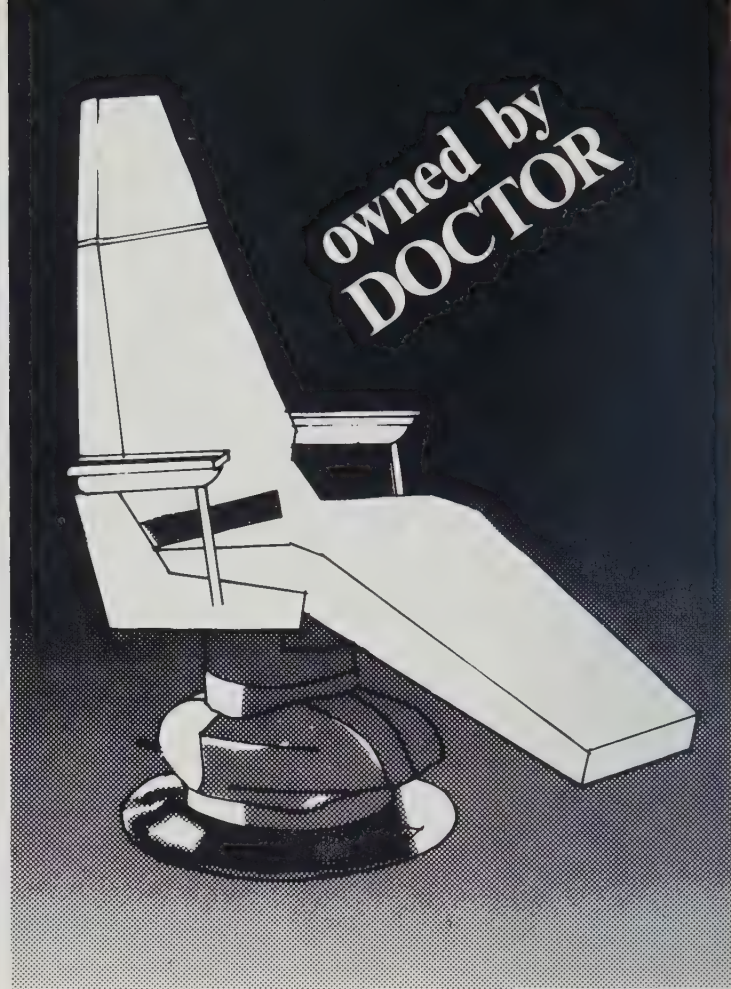
La collation des grades aura lieu le samedi 11 septembre à 15 h. à la Salle Wedgewood de l'Hôtel Macdonald. Le Dr W. G. McIntosh, ancien directeur exécutif de l'Association dentaire canadienne, prononcera une allocution à cette occasion.

Les Drs Morgan et Yule de Toronto, le Dr Ambrose de Montréal et le Dr Brass de Winnipeg obtiendront des grades honorifiques (honorary fellowships). On décernera également à cette occasion les grades (fellowships) obtenus à la suite d'examens.

Météo

Pendant le mois de septembre, la température s'élève en moyenne à environ 63°F. Le soir, elle baisse de 15° à 20°. Nous vous recommandons un manteau mi-saison assez chaud. En principe, Edmonton se classe dans les climats

"froids tempérés" — mais nous soulignons "tempéré". L'air est sec, pur et complètement exempt d'herbe à poux (ragweed) et d'autres causes de rhume des foins. Le niveau d'humidité relative s'élève en moyenne à 67%.



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ORAL HEALTH ASSESSMENT OF RESIDENTS OF A CHATHAM, ONTARIO HOME FOR THE AGED

B. P. Martinello, DDS, DDPH, FRCD(C)
London, Ont.

Results of an oral health assessment of 208 elderly Chatham residents were compared to findings in two similarly surveyed London, Ontario groups. There were no significant differences in the condition of the dental arches and age of dentures. Both London groups had significantly better denture status than the Chatham group. While the provision of prosthetic appliances presented the greatest need, virtually all partially edentulous persons required additional restorative, periodontal and surgical treatment prior to the delivery of prostheses. There were no significant differences between Chatham and London individuals living in homes for the aged with respect to time lapse since their last dental visit; however, the independent London group was significantly better than the study group in this respect.

Les résultats d'une évaluation dentaire effectuée sur un groupe de 208 résidents âgés de Chatham ont été comparés à des tests similaires faits sur deux groupes de London, Ontario. On a pu constater qu'il n'y avait pas une grande différence dans l'état des voûtes dentaires et de l'âge du dentier. Les deux groupes de London avaient, de façon significative, une bien meilleure dentition que le groupe de Chatham. Alors que la nécessité de fournitures d'appareils de prothèse se faisait le plus sentir, presque toutes les personnes partiellement édentées avaient besoin de soins supplémentaires, tels que des traitements de restauration, périodontiques et chirurgicaux avant l'installation des prothèses. Il n'y avait pas de grandes différences parmi les personnes de Chatham et de London qui vivaient dans des maisons de vieillards en ce qui concerne le temps écoulé depuis leur dernière visite chez le dentiste. Cependant, les membres du groupe indépendant de London bénéficiaient à cet égard d'un meilleur niveau de qualité dentaire que le groupe soumis à l'étude.

Demographic data projections indicate that the provision of health services to a rapidly increasing elderly population should become a priority within the next decade or two. Only the dental profession can provide the necessary leadership and direction for oral health care of this group.

The author participated in two previous Ontario oral health surveys, one related to the residents of a home for the aged in London,¹ the second related to aged residents living independently in London.² Both revealed the cumulative destruction wrought by oral diseases, which affect aged individuals physically, psychologically, socially and financially. Since planning for future denticare programs covering the elderly in Ontario is based on rather limited data, the present survey not only supplements information about our aged population but also provides additional data for the Kent County area. A comparison is drawn between this group and each of the two groups surveyed earlier in London.

Source of data

In July 1974, 208 individuals in Thamesview Lodge, a home for the aged in Chatham, were orally assessed utilizing Conduct-a-Lite mirrors, explorers and periodontal probes. Most residents were over 60 years of age, ambulatory and generally able to look after their own needs. Thirty-three required varying levels of nursing care because of senility. Nine required bed care because of handicapping conditions.

The 208 included all available residents in the home during the time of the survey. Sixteen occupants were not included because they were either in hospital or bedridden and unable to co-operate. Most were in the age groups 70 to 79 (74) and 80 to 89 (78). Caucasians constituted over 97 per cent of the group. Less than 3 per cent came from professional vocations, with many of the remainder from farming backgrounds. Economically, a cross-section was represented from financially independent individuals to those receiving public assistance.

Conditions of the dental arches
in 208 aged Chatham persons

Table 1

Age	Subjects	Neither arch edentulous		One arch edentulous				Both arches edentulous			
		N	%	Maxilla N	Maxilla %	Mandible N	Mandible %	Total N	Total %	N	%
50-59	5	2	40.0	0	0	0	0	0	0	3	60.0
60-69	17	5	29.4	1	5.9	0	0	1	5.9	11	64.7
70-79	74	15	20.3	6	8.1	0	0	6	8.1	53	71.6
80-89	78	6	7.7	7	9.0	0	0	7	9.0	65	83.3
90-99	32	3	9.4	4	12.5	0	0	4	12.5	25	78.1
>100	2	0	0	0	0	0	0	0	0	2	100.0
Total	208	31	14.9	18	8.7	0	0	18	8.7	159	76.4

The lodge has no fixed policy in respect of dental treatment. However, limited funds were made available for emergency care and provision of some dentures for persons unable to afford them. Using criteria applied in the London surveys, dentures were rated as good when all of the following conditions were considered good: fit, occlusion, function and patient satisfaction. When all four parameters were poor, the dentures were rated as poor. All other dentures were classified as fair.

The individuals surveyed are not necessarily representative of all the elderly in the county. Nevertheless, the data indicate the scope and type of problems with which the dental profession in the area may be faced, particularly if denticare, covering the elderly, were initiated, which might significantly increase their demand for oral health care.

Results

The distribution of edentulous arches in 208 Chatham individuals aged 50 to 100 plus is shown in Table 1. Over 85 per cent had at least one edentulous arch and 76.4 per cent had both arches edentulous. These data support the findings in the two London surveys^{1,2} and a Toronto study,

that Canadian groups had more edentulous arches than a comparable United States group.³ No significant differences could be demonstrated between this group and either London group.

Table 2 shows the denture status of these 208 persons. Over 71 per cent of the maxillary dentures and over 93 per cent of the mandibular dentures were either absent or less than good.

Both London groups were significantly better (chi-square $P<0.001$) than the Chatham group regarding denture status.

In the 49 partially dentate persons in this survey, 20 maxillae and 46 mandibles were partially edentulous. Only 6.9 per cent of upper and 4.3 per cent of lower arches had replacement prostheses. All were of the removable type and classified as good. The remaining 93.1 per cent of the maxillae and 95.7 per cent of the mandibles had no prostheses.

Table 3 indicates the age of dentures examined. Seventy-nine per cent had been in service over 10 years. No significant differences were found in denture ages when compared to each London group.

Table 4 gives the mean number of decayed, missing and filled permanent teeth (DMFT) by age groups. The DMFT for Chatham persons in the 60-69 age group was significantly higher than for London people living in homes for the aged (student "t" test $P<0.01$) but was not significantly different from that of the London independents. In the 70-79 age range, the Chatham group had a significantly lower DMFT than either of the two London groups (student "t" test $P<0.001$). Both London groups had a significantly lower DMFT than the Chatham group in the 80-89 age range (student "t" test $P<0.001$).

An analysis of the DMFT-TBX components is presented in Table 5. As observed in previous surveys, the nearly 6,000 missing teeth highlight the tremendous tooth loss caused by oral diseases and the lack of timely preventive measures in preserving oral structures. Fifty teeth required some type of restoration and 68 teeth were judged to require extraction.

Using Russell's index,⁴ the mean periodontal index scores for the 43 partially dentate individuals for whom it

Denture status of edentulous individuals among 208 aged Chatham persons

Table 2

Age	Maxilla								Mandible							
	No denture		Poor denture		Fair denture		Good denture		No denture		Poor denture		Fair denture		Good denture	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
50-59	0	0	0	0	1	33.3	2	66.7	0	0	0	0	2	66.7	1	33.3
60-69	5	45.4	1	9.1	3	27.3	2	18.2	7	63.6	2	18.2	0	0	2	18.2
70-79	25	47.2	2	3.8	13	24.5	13	24.5	30	56.6	6	11.3	14	26.4	3	5.7
80-89	17	26.1	7	10.8	20	30.8	21	32.3	23	35.4	9	13.8	29	44.6	4	6.2
90-99	12	48.0	2	8.0	4	16.0	7	28.0	13	52.0	6	24.0	5	20.0	1	4.0
>100	0	0	0	0	2	100.0	0	0	0	0	0	0	2	100.0	0	0
Total	59	37.1	12	7.6	43	27.0	45	28.3	73	45.9	23	14.5	52	32.7	11	6.9

Age of dentures among 208 aged Chatham persons Table 3

Age	Arch	Years in service					
		0-5		6-10		>10	
		N	%	N	%	N	%
50-59	Maxillary	1	33.3	0	0	2	66.7
	Mandibular	1	33.3	0	0	2	66.7
60-69	Maxillary	1	16.7	1	16.7	4	66.6
	Mandibular	1	25.0	1	25.0	2	50.0
70-79	Maxillary	2	7.1	5	17.9	21	75.0
	Mandibular	2	8.7	5	21.7	16	69.6
80-89	Maxillary	4	8.3	4	8.3	40	83.4
	Mandibular	6	14.3	3	7.1	33	78.6
90-99	Maxillary	1	7.7	0	0	12	92.3
	Mandibular	1	8.3	0	0	11	91.7
>100	Maxillary	0	0	0	0	2	100.0
	Mandibular	0	0	0	0	2	100.0
Total		20	10.8	19	10.2	147	79.0

was possible to record a score is exhibited in Table 6. In the 60-69 age bracket significantly lower scores were found in the London group living in homes for the aged (student "t" test $P<0.05$) and the independent London group (student "t" test $P<0.001$). In the 70-79 and 80-89 age ranges, the Chatham group had significantly lower periodontal scores than either London group (student "t" test $P<0.001$). The supporting structures around the teeth displayed a range of oral diseases extending from simple gingivitis with initial pocket formation to very advanced periodontal disease requiring surgical treatment.

The distribution of 208 Chatham persons according to the time interval since their last dental visit is portrayed in Table 7. These data were acquired from the medical records in the home and by questioning individuals at the time of examination. In the four categories recorded, no significant differences were found in the distribution of individuals between the Chatham and the London groups living in homes for the aged. However, the Chatham residents had significantly longer time intervals since their last dental visit than the independent London group (chi-square $P<0.001$).

Additional data

Major medical conditions present often require special management of the elderly patient receiving oral health care. An attempt was made to assess the potential magnitude of this type of complication in the persons examined. The most up-to-date information was accordingly obtained from their medical histories. The conditions with the high-

Decayed, missing and filled permanent teeth (DMFT) in 208 aged Chatham persons Table 4

Age	Males			Females			Total		
	N	Mean	(S.E.)	N	Mean	(S.E.)	N	Mean	(S.E.)
50-59	3	27.3	(4.67)	2	18.0	(9.80)	5	23.6	(5.60)
60-69	8	28.1	(2.19)	9	29.4	(1.71)	17	28.8	(1.34)
70-79	36	29.1	(0.99)	38	28.9	(0.78)	74	29.0	(0.43)
80-89	30	30.1	(0.68)	48	31.0	(0.12)	78	30.8	(0.38)
90-99	11	28.9	(1.83)	21	30.1	(1.10)	32	29.7	(0.95)
>100	0	0	(0)	2	32	(0)	2	32	(0)

est prevalence were diseases of the cardiovascular and musculo-skeletal systems. This pattern was similar to that recorded in the two London groups. Because of the usually chronic nature of these diseases, the patients often require special management during the delivery of oral health care.

As in the London groups, the two oral sites exhibiting the highest prevalence of gross abnormality were the lower ridge area (79), followed by the tongue (59).

Many individuals had adapted to very poorly fitting dentures, claiming they were getting along quite well. Twenty-five vulcanite base dentures were examined of which five still fitted very well and functioned quite satisfactorily.

Forty-five dentures required some repair, such as replacement of missing or broken teeth, repair of a fractured flange or repair of a cracked denture base.

The temporomandibular joints were examined by palpating the right and left condylar areas while the individual performed various jaw excursions. Clicking or crepitus was detected in 56 or 26.9 per cent. Forty-nine persons in this group still had some natural teeth. Upon further analysis, 22.6 per cent of the edentulous group and 40.8 per cent of the people with some natural teeth exhibited abnormalities.

Summary

Of these 208 aged persons, 159 (76.4 per cent) were completely edentulous and only 49 (23.6 per cent) still retained some natural teeth.

A total of 167 new complete dentures were judged necessary for persons without them and to replace poor dentures. Many of the 95 dentures classified as fair also deserved replacement.

All of the partially edentulous group required varying amounts of restorative, periodontal and surgical treatment. Fifty teeth required restorations and 58 teeth required extraction. Excluding the teeth to be extracted, virtually all supporting structures about the remaining teeth required periodontal treatment.

Statistically, no significant differences were found between the Chatham group and either of the two London groups concerning condition of the dental arches and age of

Age	Males					Females					Total				
	N	D	M	F	TBX	N	D	M	F	TBX	N	D	M	F	TBX
50-59	3(1)	0	73	5	4	2(1)	0	36	0	0	5(2)	0	109	5	4
60-69	8(4)	4	210	0	11	9(2)	1	252	3	9	17(6)	5	462	3	20
70-79	36(9)	18	1010	16	5	38(12)	9	1053	30	8	74(21)	27	2063	46	13
80-89	30(7)	6	888	0	10	48(6)	2	1488	3	7	78(13)	8	2376	3	17
90-99	11(4)	4	311	1	2	21(3)	6	613	2	12	32(7)	10	924	3	14
>100	0	0	0	0	0	2	0	64	0	0	2	0	64	0	0
Total	88(25)	32	2492	22	32	120(24)	18	3506	38	36	208(49)	50	5998	60	68

() = Number in group with some natural teeth present

Periodontal index (Russell) in 43 of 208 aged Chatham persons

Table 6

Age	Periodontal index						
	Male		Female		Total		
	N	Mean	N	Mean	N	Mean	(S.E.)
50-59	1	2.21	1	0	2	1.11	(1.11)
60-69	3	4.00	2	2.01	5	3.20	(1.20)
70-79	8	0.57	11	0.57	19	0.57	(0.33)
80-89	7	0.31	6	1.00	13	0.63	(0.31)
90-99	3	0.17	1	0.75	4	0.31	(0.19)

dentures. Both London groups were significantly better in respect of their denture status than the 208 Chatham residents.

Regarding time lapse since the last dental visit, no significant difference was found between the Chatham and London groups living in homes for the aged. The independent London group was significantly better in this respect than either of the two groups residing in the homes.

A varied pattern, by age groups, was observed when the DMFT index for the Chatham group was compared to each of the London groups. In the 70-79 age range, Chatham residents had a significantly lower DMFT than either of the two London groups, but in the 80-89 age group they had a significantly higher DMFT.

Periodontal scores also revealed a varied pattern. In the 60-69 age bracket, both London groups had significantly better scores than Chatham individuals. However, the pattern was reversed in the 70-79 and 80-89 age groups.

The findings of this study lend further weight to the premise that delivery of adequate oral health care to a rapidly increasing elderly population presents a significant challenge to the dental profession.

Distribution of 208 aged Chatham persons according to last dental visit

Table 7

Age	Months since last dental visit							
	0-11		12-23		24-60		> 60	
	N	%	N	%	N	%	N	%
50-59	1	20.0	0	0	0	0	4	80.0
60-69	3	17.7	0	0	2	11.8	12	70.5
70-79	3	4.1	2	2.7	8	10.8	61	82.4
80-89	3	3.9	5	6.4	5	6.4	65	83.3
90-99	1	3.1	0	0	4	12.5	27	84.4
>100	0	0	0	0	0	0	2	100.0
Total	11	5.3	7	3.4	19	9.1	171	82.2

The author expresses appreciation for the assistance and co-operation of the Thamesview Lodge administration and staff in Chatham, Ontario, and the dental personnel of the Kent-Chatham Health Unit.

Dr. Martinello was formerly professor and chairman of the Department of Social Dentistry, Faculty of Dentistry, University of Western Ontario, London, and part-time director of the Dental Division, Kent-Chatham Health Unit. He has been appointed Executive Director of the Alberta Dental Association.

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A FOUR YEAR EVALUATION OF A FISSURE SEALANT IN A PUBLIC HEALTH SETTING

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Two caries-free first permanent molar teeth were treated with a pit and fissure sealant in 518 Grade 1 and 2 school children. The treatment was carried out in 41 London and Middlesex County, Ontario, schools, using portable equipment, by two separate teams led by a dentist and a dental hygienist. After 48 months, from the children available for re-examination, the sealant was partially or totally lost from 79.9 per cent of the treated teeth. The occlusal caries percentage reduction was 21.6 per cent. A significant reduction was observed in the number of children exhibiting occlusal caries on their treated, relative to their control, sides. The cost of applying the sealant was much higher for the children treated by the dentist, but the dentist achieved a better rate of retention of the material. Teeth that had lost the sealant were no more susceptible to decay than untreated controls.

Deux premières molaires permanentes exemptes de carie de 518 écoliers de 1ère et 2ème année ont été traitées au moyen d'une substance de scellement des puits et fissures. Ce traitement a été effectué par deux équipes distinctes, dirigées par un dentiste et une hygiéniste dentaire, dans 41 écoles des comtés de London et de Middlesex (Ontario) à l'aide d'un équipement portatif. Au bout d'une période de 48 mois, la substance de scellement qui avait été appliquée avait totalement ou partiellement disparue des dents traitées de 79.9 pour cent des enfants ayant pu être réexaminés. Les caries occlusales avaient diminué de 21.6 pour cent. On a pu noter une forte diminution des caries occlusales du côté traité par rapport au côté non-traité. Le coût de l'application de la substance de scellement était beaucoup plus élevé pour les enfants soignés par le dentiste, mais ce dernier a pu obtenir un taux plus élevé de rétention de la substance. Les dents qui n'avaient pas retenu la substance de scellement n'étaient pas plus susceptibles à la carie que les dents non-traitées.

Attempts to prevent the initiation of dental caries in occlusal tooth surfaces date back to 1923. Hyatt¹ advocated prophylactic filling of pits and fissures. Miller² suggested the sealing of occlusal grooves with copper cement. Eradication of fissures by grinding was recommended by Bodecker.³ Others attempted a chemical approach using the precipitation of silver nitrate⁴ and zinc chloride.⁵ None of these methods met with acceptance.

More recent research⁶⁻¹² has provided some answers to the mechanical adherence of resins to enamel. Clinical trials¹³⁻²¹ have demonstrated the potential of resin sealants to prevent occlusal decay. One of these sealant systems utilizing a thin Bis-GMA resin film to occlude pits and fissures without occlusal interference has been developed by Buonocore.¹⁴ He has reported that this measure reduced occlusal decay by more than 95 per cent in permanent posterior teeth over a three year period.²² This product, an ultraviolet light polymerising resin, marketed as Nuva Seal, is the one used in the field study reported in this paper.

Materials and methods

The study was conducted in September 1971 to determine whether:

1. A dental hygienist can identify teeth acceptable for this procedure as well as a dentist.
2. Radiographs are needed for initial diagnosis or for the evaluation of this treatment.
3. A dental hygienist can apply the material as well as a dentist.
4. A dental hygienist can evaluate the clinical success of this treatment as well as a dentist.
5. The cost and success of this treatment performed by dental hygienists warrant its inclusion in preventive dental public health programs.

The model chosen for this study consisted of first permanent molars of children attending schools in London, Ontario and surrounding Middlesex County. To obtain the sample, the schools were ranked in order of the children's

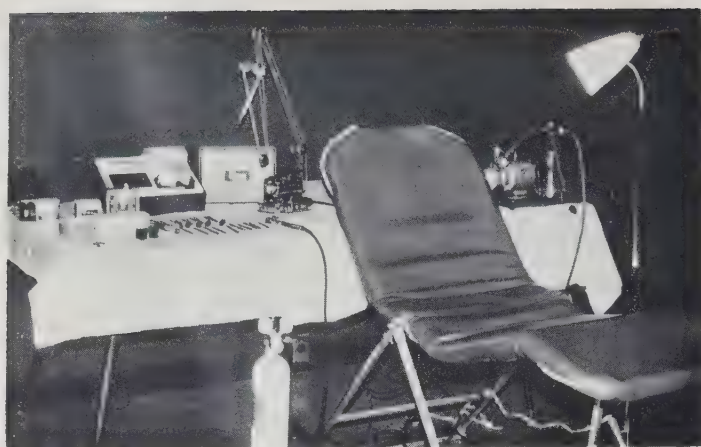


Fig 1 Portable clinical equipment set-ups of the type used in this study.

dental health according to health unit examination records of the previous year. The schools were then grouped by rank and equal numbers of schools from each group were randomly assigned to each clinician in order to balance the prevalence of dental caries in the sample assigned to each clinician.

During September 1971, a dentist and a dental hygienist screened the children in the schools assigned to them, in order to identify the children in Grades 1 and 2 (aged 5 to 7) who had four caries-free first permanent molars. Letters of permission were obtained from the parents for participation in the project.

A two day orientation and technique course was given late in October 1971 by one of the developers of the material. Both laboratory procedures and clinical patients were used to familiarize the clinicians with the new material. The instructor also visited the teams at the temporary clinic sites during their first two days and later in the eight week clinical period, to check on the technique and recommend improvements.

Thereafter the teams returned to their schools to examine the children's teeth more carefully and select those who would receive the treatment. If a child were selected, the sealant was applied at that sitting to the first permanent molars on one side only. The side treated was alternated in successive patients. Bitewing radiographs were taken, usually on the same day. These radiographs were later developed in an automatic processor at the University of Western Ontario and read by the authors.

Following the period of the clinical applications, the children were re-examined at six-month intervals, for a 24 month period, by an independent examiner from the Department of Restorative Dentistry, Faculty of Dentistry, University of Western Ontario, who is well acquainted with the use of sealants as a preventive agent. This same individual examined the group at the 36 and 48 month intervals.

He examined only study children but was unaware of which side had been treated or which clinician had treated the children.

Each clinician also re-examined at 12 and 24 months only

Independent radiographic assessment of first permanent molars of children aged 5-7 clinically accepted for treatment with sealant

Table 1

Radiographic rating of teeth	Dentist	Hygienist	Combined
0 no caries	1,094	831	1,925
1 occlusal caries	9	7	16
2 proximal caries	13	6	19
3 proximal and occlusal caries	1	0	1
4 radiograph unreadable	11	20	31
5 child absent	8	72	80
Total	1,136	936	2,072
Success rate: (No. of 0's × 100)/total readable radiographs			
	97.9%	98.5%	98.2%

the children he had treated. One team also took radiographs for all of the study children at the 12 and 24 month assessments.

The examiners — the two clinicians and the one independent examiner — evaluated the teeth for the presence of occlusal caries as defined by a fissure that definitely resists the withdrawal or supports the point of an explorer. The status of the sealant was also determined according to the following criteria:

1. Intact — the sealant can be demonstrated over all of the occlusal grooves and fissures.
2. Partial loss — the sealant can be demonstrated over some of the occlusal grooves and fissures.
3. Complete loss — the sealant cannot be demonstrated over any of the occlusal grooves and fissures.

The visual examinations were made with No. 4 mirrors and Premier No. 2 D.E. explorers. The results were recorded by the assistant on special mark sense computer cards which were processed by IBM (London).

Criteria for selection — During the second pre-application assessment, the teeth were examined and scored by the clinicians according to the following criteria:

- 0 definite fissure—relatively smooth with no stain,
- 1 definite fissure—relatively smooth with stain,
- 2 definite fissure—light catch of explorer with no stain,
- 3 definite fissure—light catch of explorer with stain,
- 4 definite fissure—catch supports the end of the explorer.

All teeth scored 4, teeth with proximal decay or teeth with smooth fissures were rejected. Children were included who had all four first permanent molars rated 0, 1, 2 or 3 and had no proximal decay.

Equipment — Figure 1 shows one of the portable clinical

Clinician	Initial screening			Second examination		
	No. of children		Acceptance rate	No. of children		Acceptance rate
	Screened	Accepted		Examined	Accepted	
Dentist	2343	676	28.8	343	284	82.8
Hygienist	2073	874	42.2	305	234	76.7
Combined	4416	1550	35.1	648	518	79.9

Time and salary costs of applying sealant to grades 1 and 2 pupils
in a public health program

Table 3

Time spent in:	Dentist and assistant team		Hygienist and assistant team	
	232 patients		185 patients	
	Per cent of total time (245 hrs.)	Cost per patient (\$)	Per cent of total time (210 hrs.)	Cost per patient (\$)
Central office	7.1	.95	9.24	.72
Recorded delays	3.6	.48	8.22	.64
Travel	19.9	2.65	19.74	1.54
Setting and packing up	18.8	2.49	9.22	.72
Treatment	39.7	5.26	34.77	2.71
Radiographs	8.0	1.07	9.79	.76
Sub-total*	97.1	12.90	91.00	7.09
Unrecorded time	2.9	.38	9.01	.70
Total*	100.0	13.28	100.0	7.79
Estimated cost basing radiograph costs at the average cost per patient for both groups		13.08		7.63

*Totals given are from more precise figures and may not be the exact sums of the items.

equipment set-ups used in the study. A dry field was maintained with a saliva ejector connected to a Gomco No. 789 suction. Air under pressure for drying was supplied by a portable compressor for the dentist and compressed air from bottles for the hygienist. The teeth were isolated with cotton balls.

Both clinicians had some difficulty adapting to this field equipment. The hygienist also reported variation in the intensity of light from the ultraviolet gun which was one of the first manufactured to meet Canadian electrical standards. This was resolved as suggested by one of the developers of the material, by exposing the plastic sealant to the ultraviolet light for a longer period than the recommended 30 seconds. A maximum of 45 seconds was found

to provide a uniform and satisfactory degree of polymerization and the gun was replaced as soon as a new one was obtained.

Initial radiographic assessment — Two 50kV dental x-ray machines were installed in Econoline vans which the teams used to transport their equipment. The children came to the vans, parked beside the schools, to have the radiographs taken. Using a standard technique and Kodak Ultraspeed film, two bitewing radiographs were to be taken just after the application of the Nuva Seal and then at 12 and 24 month intervals.

This was done to assess the initial diagnosis and to detect any developing caries in the first permanent molars throughout the study. The processed radiographs were read

Number and per cent of first permanent molars with occlusal decay by clinician and status of sealant 48 months following application by dentist and hygienist teams

Table 4

Status of sealant	Clinician	Number of pairs of treated-control teeth (1)	Number (%) of treated teeth with occlusal decay (2)	Number (%) of control teeth with occlusal decay (3)	% Reduction (effectiveness) (3) - (2) (3)
Intact	Hygienist	34	0 (0.0)	25 (73.5)	98.3
	Dentist	135	2 (1.5)	90 (66.7)	
	Combined	169	2 (1.2)	115 (68.0)	
Partial loss	Hygienist	7	7 (100.0)	7 (100.0)	0.0
	dentist	9	9 (100.0)	9 (100.0)	
	Combined	16	16 (100.0)	16 (100.0)	
Complete loss	Hygienist	335	283 (84.5)	273 (81.5)	5.5
	Dentist	320	215 (67.2)	254 (79.4)	
	Combined	655	498 (76.0)	527 (80.5)	
Total sample	Hygienist	376	290 (77.1)	305 (81.1)	4.9
	Dentist	464	226 (48.7)	353 (76.1)	17.8
	Combined	840	516 (61.4)	658 (78.3)	21.6

Net reduction of occlusal decay in treated-control pairs of first permanent molars in 420 children remaining in study 48 months following the application of sealant

Table 5

Teeth treated by	No caries on treated or control sides (1)	Caries on treated and control sides (2)	Caries on control side only (3)	Caries on treated side only (4)	Net reduction (3) - (4)
Hygienist	43	262	43	28	15
Dentist	96	221	137	10	127
Combined	139	483	180	38	142

jointly by the authors using the following criteria:

0 No visible caries on proximal or occlusal surfaces or no visible caries on proximal surface but a visible shadow or defect extending less than 0.5 mm below the dentino-enamel junction on the occlusal surface.

1 No visible caries on proximal surface but definite caries on occlusal surface.

2 Proximal caries only.

3 Proximal and occlusal caries.

4 Radiograph unreadable.

5 Child absent.

Results

The initial radiographs provided a method of measuring the clinicians' ability to diagnose the children's teeth. Initially we feared that a carious lesion could be sealed in a

tooth and cause even more harm than if the tooth had been left untreated. Secondly, there was concern that many developing interproximal cavities would be missed in a mirror and explorer screening. According to the criteria for selection, all four permanent molars of the children selected should have scored "0" on the radiographic assessment (Table 1).

Of the 936 teeth treated by the hygienist, 844 had good radiographs and 831 of these scored "0" for a success rate of 98.5 per cent. Of the 1,136 teeth treated by the dentist, 1,117 teeth had good radiographs and 1,094 of these scored "0" for a success rate of 97.9 per cent. Both clinicians combined achieved a success rate of 98.2 per cent. Only 20 teeth exhibited proximal decay.

Seventeen teeth which were diagnosed radiographically as having occlusal decay had already been accepted for the study (Table 1). By chance, only six of these had sealant applied to them. In one tooth the material was lost by six months, in two others at 12 months and in another two by 18 months. In the sixth, the material was still present at 24 months.

At 24 months, the tooth retaining the sealant and the one that had lost the material by 18 months appeared to be healthy, clinically and radiographically. The other four have been filled by the patients' family dentists.

Radiographs were not taken to determine whether the clinicians were excessively selective and excluding children who should have been included. However, Table 2 shows the acceptance rates for each clinician at the initial screening and on the second examination just prior to placement of the sealant. The dental hygienist accepted a higher proportion of students on the initial screening than did the

Net reduction in the number of children exhibiting occlusal caries in their first permanent molars 48 months after two teeth on one side were treated with sealant

Table 6

Children treated by	No caries on treated or control sides (1)	Caries on treated and control sides (2)	Caries on control side only (3)	Caries on treated side only (4)	Net reduction (3) - (4)
Hygienist	13	150	14	11	3
Dentist	25	145	61	1	60
Combined	38	295	75	12	63

Number and percentage of first permanent molars available for re-examination showing loss of material at stated intervals after treatment with sealant

Table 7

	6 months	12 months	18 months	24 months	36 months	48 months
Hygienist:						
No. of teeth examined	448	446	438	426	374	376
Partial loss	23 (5.0)	34 (7.6)	24 (5.5)	14 (3.3)	6 (1.6)	7 (1.8)
Complete loss	81 (18.1)	180 (40.3)	245 (55.9)	282 (66.2)	303 (81.0)	335 (89.1)
Sum of above	104 (23.2)	214 (48.0)	269 (61.4)	296 (69.5)	309 (82.6)	342 (91.0)
Dentist:						
No. of teeth examined	528	532	516	496	458	464
Partial loss	9 (1.7)	45 (8.5)	25 (4.8)	19 (3.8)	17 (3.7)	9 (1.9)
Complete loss	39 (7.4)	80 (15.0)	145 (28.1)	207 (41.7)	259 (56.6)	320 (69.0)
Sum of above	48 (9.1)	125 (23.5)	170 (33.0)	226 (45.6)	276 (60.3)	329 (70.9)
Both teams combined:						
No. of teeth examined	976	978	954	922	832	840
Partial loss	32 (3.3)	79 (8.1)	49 (5.1)	33 (3.6)	23 (2.8)	16 (1.9)
Complete loss	120 (12.3)	260 (26.6)	390 (40.9)	489 (53.0)	562 (68.3)	655 (78.0)
Sum of above	152 (15.6)	339 (34.7)	439 (46.0)	522 (56.6)	585 (71.1)	671 (79.9)

dentist. However, on the second examination, using more precise criteria, she appeared to be more selective than the dentist.

The time and salary costs involved in treating the children are given in Table 3. The costs are based on the 1971 salaries of the dentist (\$70 per day), the hygienist (\$30 per day) and the assistants (\$18 per day). The days were calculated at seven hours of which school accounted for 5.5 hours. The time recorded as "treatment time" includes the time from which each clinician and assistant started their first patient to the time they finished their last in any half day, excluding recess breaks and any other recorded delays such as fire drills. It includes time for the assistant to get the children from the classroom, seat the patients, and for the clinician to do the fine examination and the subsequent

application of sealant. If a child was rejected because he did not meet the more exact criteria, the time spent on that examination was not recorded separately.

Cost estimates were calculated from daily time sheets. The days spent on the first 50 children by each clinician were excluded because unfamiliarity with the portable equipment decreased their efficiency. The average costs were \$13.08 for the dentist and \$7.63 for the hygienist. The actual treatment (chair) time costs per patient for this group were \$5.26 for the dentist and \$2.71 for the hygienist.

These figures represent the cost of treating two teeth per patient. The cost per tooth would be reduced if the clinicians had treated all of the acceptable teeth in the child.

Table 4 shows the final results of 420 children remaining in the study after 48 months. Overall, we observed a 21.6

Relative accuracy of dentist and hygienist in assessing the status of first permanent molars treated twelve months earlier with sealant

Table 8

Type of evaluation	Number of teeth measured	Number of agreements	% Success
Presence or absence of caries*			
Dentist	1080	915	84.7
Hygienist	892	731	82.0
Presence or absence of sealant*			
Dentist	540	404	74.8
Hygienist	446	336	75.3

* The accuracy of the dentist and hygienist was measured on the diagnosis of occlusal caries and on the status of the sealant as assessed by an independent examiner. The assessment by the examiner was made up to six weeks after the assessment by the clinicians.

per cent caries reduction in the treated teeth. Where the sealant remained intact, there was a 98.3 per cent caries reduction in the treated occlusal surfaces.

Combining the 671 treated teeth which showed either partial or complete loss, 514 exhibited occlusal decay compared to 543 of their matched controls. Where the sealant was lost by 48 months, the simple decay rates for the treated and control teeth differed by 4.3 per cent.

Table 5 shows the net reduction of occlusal decay in treated-control pairs of first permanent molars. A net gain occurred in 142 of the 840 treated-control pairs.

Table 6 shows the net reduction in the number of children who had occlusal cavities in their six year molars. The number of children occurring in columns (3) and (4) were tested against the numbers that would be expected if there had been no treatment effect. Using the binomial test, it was found that the sealant reduced caries significantly ($p < .001$) in children whose teeth were treated by the dentist and in the total group. Using the chi square test, the success of the treatment when done by the dentist was significantly better ($p < .001$) than when done by the hygienist.

The progressive loss of the sealant from the children's teeth is shown in Table 7. It is evident that losses occurred much less frequently at all stages on the teeth treated by the dentist. Overall, 20.1 per cent of the treated teeth exhibited retention on the total occlusal surface over the 48 month period.

The accuracy of the dentist's and hygienist's 12 month assessment as measured against the independent examiner is shown in Table 8. While the dentist and hygienist vary when measured against a set standard (independent examiner), they vary in the same order of magnitude with no significant differences between them. The 24 month data reinforced the finding of the hygienist's ability to clinically assess the treatment.

Discussion

We cannot account for the marked difference in sealant retention achieved by the two clinicians. At 48 months, the sealant was completely retained on 9.0 per cent of the teeth treated by the hygienist versus 29.1 per cent of the teeth treated by the dentist.

Maintenance of a dry field after the etching is essential and this was difficult with the method used and the state of eruption of some of the treated teeth. With a longer training program, more experience, greater care and less transporting of the equipment on an almost daily basis, dental hygienists should be able to approach the clinical success of the dentist.

The following formula was used to calculate the cost-benefit ratio of delivering this program:

$$\text{Cost-benefit ratio} = \frac{\text{Costs of implementation}}{\text{Savings in the cost of treatment}}$$

The data in Table 5 show the savings in treatment to be 142 teeth. According to the 1972 Ontario Dental Association Fee Guide, these would have each cost \$8.00 to restore, for a total treatment saving of \$1,136.00. Using data from Table 3, the cost of implementation was $(232 \times \$13.08 + 185 \times \$7.63)$ \$4,446.11. Therefore:

$$\text{Cost-benefit ratio} = \frac{4,446.11}{1,136.00} = \frac{3.91}{1}$$

Thus the program required \$3.91 to deliver the care that \$1.00 would have purchased. There are, however, two caveats.

Firstly, the program delivered the care to the children. The costs of transporting the children to private dental offices was not included in the fee for the restoration. Thus the treatment costs should be inflated to include this delivery component in order to make the comparison strict.

Secondly, the formula assumes 100 per cent success of the restoration over the four year time frame.

Summary

The costs of a dentist and a dental hygienist applying a Bis-GMA resin sealant to two teeth of school children aged 5, 6 and 7 were determined in 420 of the 518 children in the original sample in London and Middlesex County. The rigid clinical criteria used in selecting and evaluating the first permanent molars of this age cohort of children appear to obviate the need for radiographs of those teeth. The hygienist's and the dentist's performance levels were on a par for diagnosing and evaluating the teeth; however, the dentist's clinical success rate as measured 48 months after the treatment was reflected by 29.1 per cent sealant retention versus 9.0 per cent retention for the hygienist. Overall, 20.1 per cent of the sealed teeth showed complete retention after 48 months. Just as important, the 671 treated teeth which subsequently lost any or all material showed no greater predilection for caries at the 48 month assessment than did the untreated controls.

The occlusal surface caries rate on the first permanent molars was reduced by 21.6 per cent at 48 months subse-

quent to this treatment. Of the 840 treated and control pairs, 142 showed a net gain. Significant differences were observed in the children as a result of the treatment.

As a school based area-wide program, this single preventive approach does not appear to be worthwhile in light of the cost-benefit consideration.

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The Department of Epidemiology and Preventive Medicine, Faculty of Medicine, University of Western Ontario, provided consultation on the statistical analysis of the data.

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Note: For more information contact: Regional Personnel Officer, N.W.T. Region, 1401 Baker Centre, 10025 — 106 Street, Edmonton, Alberta.

How to Apply

Forward completed "Application for Employment" (Form PSC 367-4110) available at Post Offices, Canada Manpower Centres or offices of the Public Service Commission of Canada, to:

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Edmonton, Alberta T5J 1Y6

Closing Date: August 31, 1976

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Nota: Pour tout renseignement, s'adresser à l'agent régional du personnel, Région des T.N.-O., Centre Baker, pièce 1401, 10025, 106^e rue, Edmonton (Alberta).

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Remplir le formulaire de demande d'emploi C.F.P. 367-4110, — on le trouve dans les bureaux de poste, les centres fédéraux de main-d'œuvre, et les bureaux de la Commission de la fonction publique du Canada, — et le faire parvenir à:

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Salary: \$2211 to \$2621 per month.

All applications should be obtained from, and returned, preferably together with a resume to the Director of Personnel Services, Second Floor, City Hall, 453 West 12th Avenue, Vancouver, B.C. V5Y 1V4, as soon as possible. This position is open to male and female applicants.

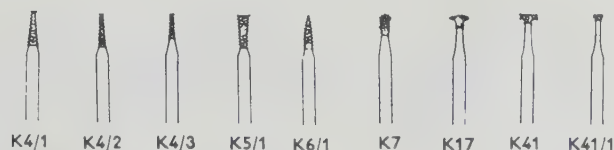
UNIVERSITY OF QUEENSLAND

Chair of Social and Preventive Dentistry

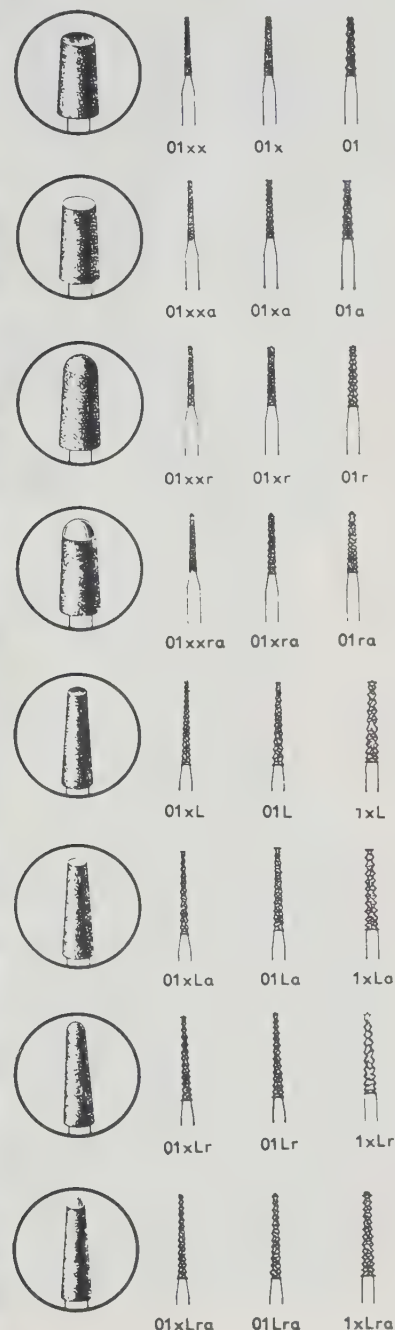
The University invites applications for the Chair of Social and Preventive Dentistry, vacant on the appointment of Professor G.N. Davies as Deputy Vice-Chancellor (Academic) of the University of Queensland. Applicants should have appropriate academic qualifications and substantial experience, including a strong research record, in one or more of the areas of Community Dentistry, Public Health Dentistry and Preventive Dentistry. The appointee will be required to become registered as a dentist in Queensland.

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Additional information and application forms are obtainable from the Staff Officer, University of Queensland, St. Lucia, Brisbane, Q. 4067, Australia, with whom applications close on 31st August, 1976.



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Applications should be sent to:

Dr. T. J. Harrop, Associate Professor and Head,
Department of Restorative Dentistry,
Faculty of Dentistry,
University of British Columbia,
2075 Wesbrook Place, Vancouver, B.C.
Canada V6T 1W5

University of Alberta

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Enquiries with current curriculum vitae should be submitted to:

Dean J. McCutcheon, Faculty of Dentistry,
Room 3036, Dentistry Pharmacy Centre,
The University of Alberta,
Edmonton, Alberta T6G 2N8

ADVERTISERS' INDEX

Amalgamated Dental	377
Ash Temple	393
Astra Pharmaceuticals (Canada) Ltd.	OBC
Block Drug Company Canada	390
John O. Butler Co.	375
L. D. Caulk Co. of Canada	399
Colgate-Palmolive Ltd.	371
Dentsply International	366, 386, 400
Charles E. Frosst & Co.	388
Feature Finance	417
Howmedica Inc.	IFC
Inter-Unitek Canada Ltd.	392
Johnson and Johnson	381-4
Kodak Canada Ltd.	IBC
Lever Brothers	378, 379
Medident	404
Nobilium Products of Canada	397
Orthodontic Laboratories	376
Pelton and Crane	369
Pfingst and Co. Inc.	419
Procter and Gamble	365
Warner-Lambert Canada Ltd.	373

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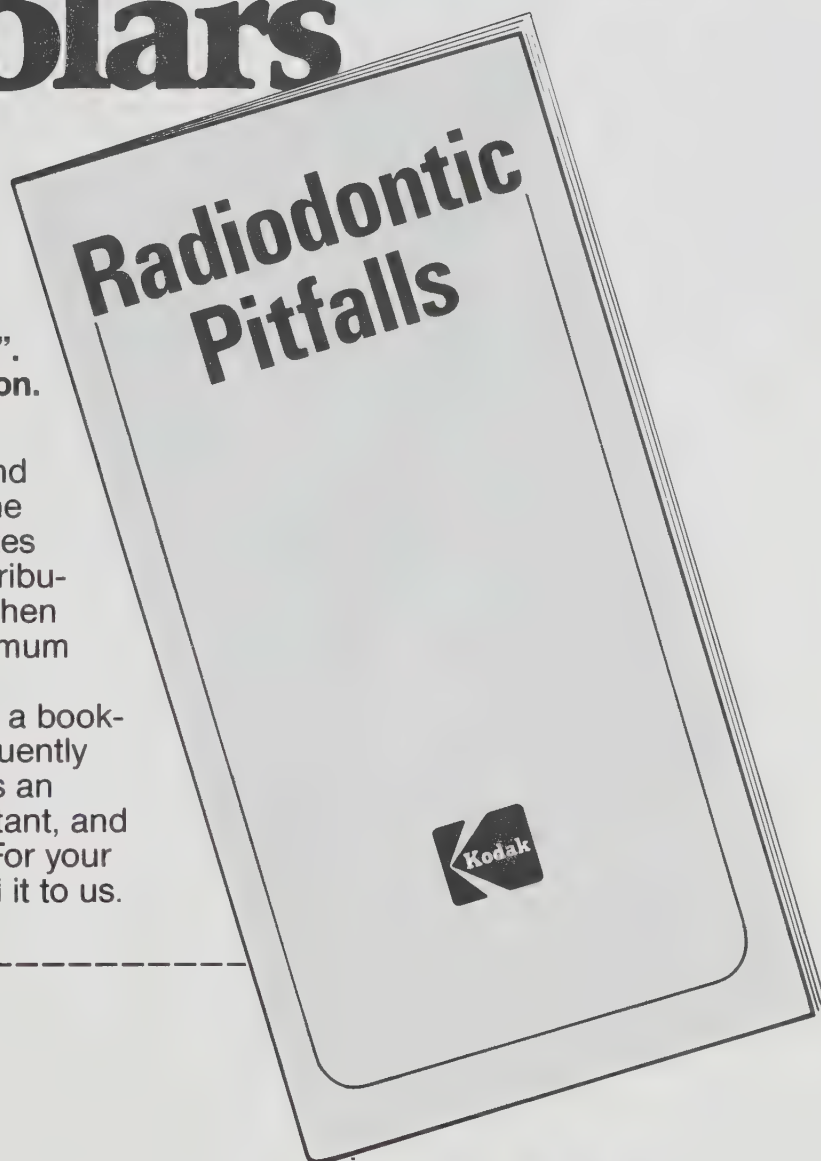


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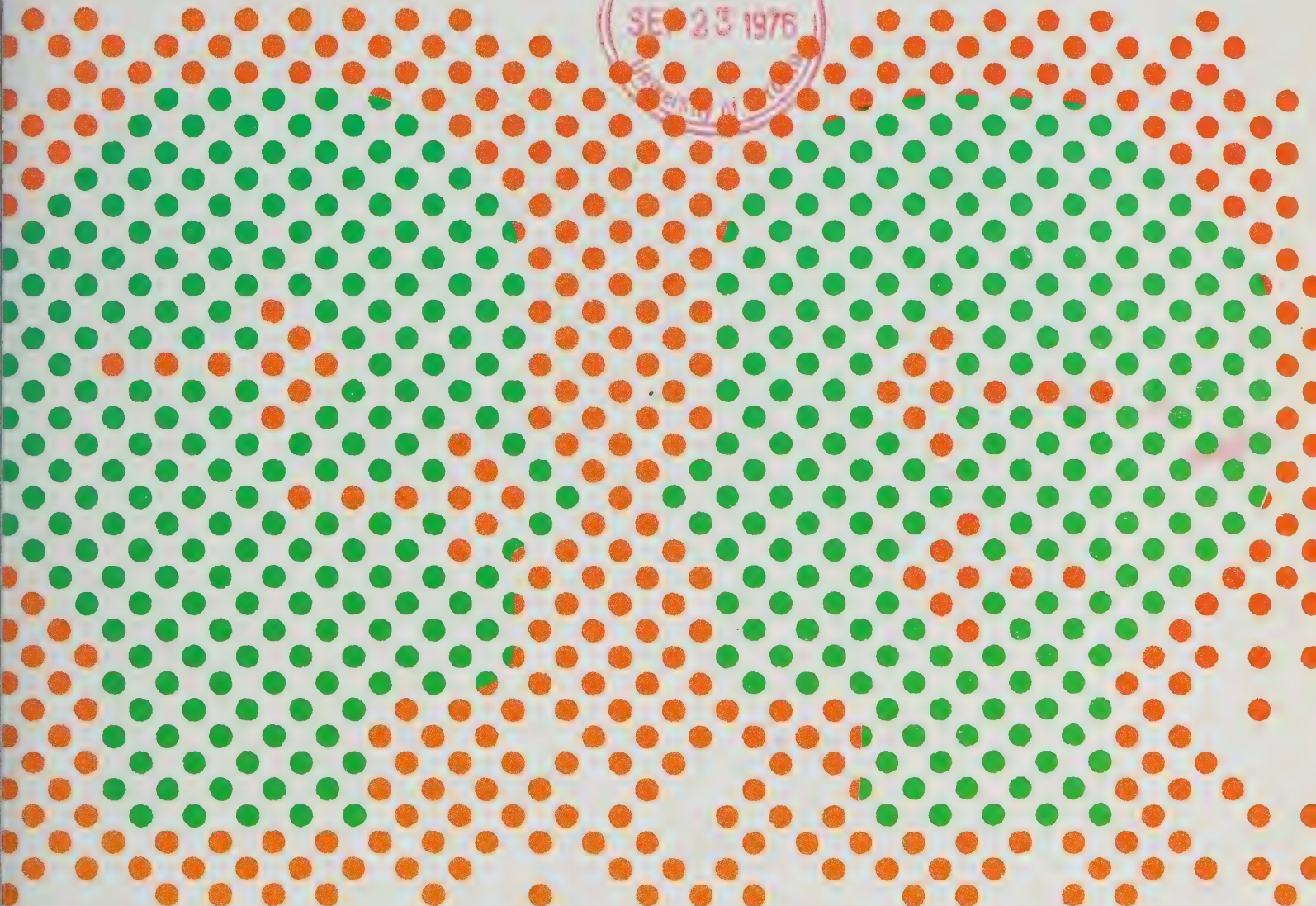
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Canadian Dental Association/Association Dentaire Canadienne



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ISSN 0008-3372

Editorial

The promise of our own good fortune	426
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Special Features

CFDE — A helping hand — Dimitri	444
Oral radiology Simple methods of accommodating to fast dental x-ray films — Reid and Ruprecht	447
Effects of varying peak kilovoltage and filtration on diagnostic dental radiographs — Oishi and Parfitt	449

Regular Features

Announcements	424
Dentistry in the news	428
Les actualités dentaires	440
In memoriam	439
Deaths	439

Articles

Auditory canal haemorrhage with contralateral condylar fracture — Kilgore, Booth and Hersh	455
A simplified immediate maxillary denture — Signer	457

Classified advertising

Advertisers' index	462
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La direction du Journal ne partage pas nécessairement les opinions qu'expriment ses collaborateurs à moins que l'Association Dentaire Canadienne ne les ait adoptées officiellement.

Announcements/Avis

Information about other meetings or courses, including American continuing education courses, may be obtained by writing to CDA headquarters.

Canadian Dental Association
1976, Edmonton, Alta, Sept. 12-15.

Fédération Dentaire Internationale
1976, Athens, Greece, Sept 26-Oct 2;
1977, Toronto, Oct 22-28.

Canadian Meetings

Canadian Society of Forensic Science, at Quebec City. Oct. 13-15, 1976. Dr. R. B. J. Dorion, Canadian Society of Forensic Science, 63 Kilbarry Cres., Ottawa, Ont. K1K 0H2.

The Law and Economics Program, Faculty of Law, University of Toronto, Toronto, Ontario, Oct. 15 and 16, 1976. The Law and Economics Program will sponsor a national conference on "The Professions and public Policy". Conference Office, 12th Floor, Ontario Institute for Studies in Education, 252 Bloor Street West, Toronto, Ontario M5S 1V6 Telephone (416) 923-6641, ext. 391. Registration fee: \$120.00.

Montreal Dental Club Pre-Convention Seminar, at Montreal. Nov. 13-14, 1976. Miss M. Komarnicka, 4166 St. Catherine St. W., Montreal 215, Quebec.

Montreal Dental Club Fall Clinic, at Montreal. Nov. 15-17, 1976. Miss M. Komarnicka, 4166 St. Catherine St. W., Montreal 215, Quebec.

The American Society for the Advancement of Anesthesia in Dentistry, Monte Carlo, Monaco, Dec. 2

to 7, 1976. The First International and European Dental Congress on Modern Pain Control.

Ontario Dental Association, at Sheraton Centre (formerly Four Seasons Sheraton), Toronto, May 8-11, 1977. Mrs. W. C. Durham, 234 St. George St., Toronto, Ont. M5R 2P2.

Les Journées Dentaires du Québec, at Queen Elizabeth Hotel, Montreal. May 16-20, 1977. Dr. M. R. Lang, 5171 Decarie Blvd., Montreal, Que. H3W 3C2.

Congress on Cleft Palate and Related Craniofacial Anomalies, at Royal York Hotel, Toronto. June 5-10, 1977. Deadline for abstracts Sept. 30, 1976. Advance registration closes Dec. 31, 1976. Congress Secretariat, 191 College St., Toronto, Ont. M5T 1P7.

Western Canada Dental Society, at Banff Springs Hotel, Banff, Alberta. July 3-6, 1977. Dr. D. Pedlar, Publicity Chairman, Western Canada Dental Society, 1711-4th St. S.W., Ste 303, Calgary, Alta. T2S 1V8.

International Meetings

Armed Forces Institute of Pathology, 13th Annual Course in Forensic Dentistry, at Walter Reed Army Medical Centre, Washington, Oct. 4-7, 1976. Armed Forces Institute of Pathology, Washington, DC., 20306.

American Institute of Oral Biology, at Palm Springs, Calif. Oct. 22-26, 1976. Executive Secretary, American

Institute of Oral Biology, P.O. Box 481, South Laguna, Calif. 92677, USA.

American Academy of Implant Dentistry, at Las Vegas. Nov. 11-13, 1976. American Academy of Implant Dentistry, 469 Washington St., Abington, Mass. 02351, USA.

American Prosthodontic Society, at Las Vegas. Nov. 12-13, 1976. R. B. Underwood, 919 North Michigan Ave., Ste 2108, Chicago, Ill. 60611, USA.

American Dental Association, at Las Vegas, Nevada. Nov. 14-18, 1976. Convention Bureau, American Dental Association, 211 East Chicago Ave., Chicago, Ill. 60611, USA.

American Academy of Periodontology, at San Francisco. Nov. 17-20, 1976. Miss M. Holmquist, 211 East Chicago Ave., Ste 924, Chicago, Ill. 60611, USA.

International Congress of the Association Dentaire Francaise, at Paris, France. Nov. 30-Dec. 4, 1976. Dr. J. Charon, Association Dentaire Francaise, 22 avenue de Villiers, 75017, Paris, France.

American Society for the Advancement of Anesthesia in Dentistry. Congress on Modern Pain Control, at Monte Carlo, Monaco. Dec. 7, 1976. Dr. A. Reyes-Guerra. 475 White Plains Rd., Eastchester, NY, USA.

American Dental Association, 28th Annual Management Conference, at ADA Headquarters, Chicago, June 13-15, 1977. American Dental Association, 211 East Chicago Ave., Chicago, Ill., 60611, USA.



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EDITORIAL

THE PROMISE OF OUR OWN GOOD FORTUNE

Since 1962, the Canadian Fund for Dental Education has invested no less than three-quarters of a million dollars in Canadian dentistry through teacher training fellowships, grants to dental schools, and other forms of direct aid to dental education and research. Much of this largesse came from the contributions of individual dentists. In one recent year, for instance, more than a thousand of them made tax-deductible gifts of \$37,000 to the Fund — impressive figures, no doubt, until one realizes that less than one dentist in six was an actual donor.

Dentists generally acknowledge their privileged position as a favoured minority in society. But no group survives by picking and choosing and taking what it wants unless all of its members accept a fair share of responsibility for the benefits derived.

Nowhere is this more evident, for example, than in the relationship between the wealthy industrial powers and the emerging nations of the Third World. Decolonization left the latter with some crucial handicaps: economies based mainly on the export of non-renewable resources, little if any local manufacturing capacity, subsistence agriculture, and little or no technical know-how. Such impediments impose the severest internal contradictions: agriculture caught by the pressure of population, industry caught because the developing economies are geared outward to external trade and there is no internal market, education caught because of the immense cost of acquiring skills, and exports caught by the instability of world commodity prices.

To their great credit, Canada and many other Western powers moved swiftly by providing technical and economic aid to redress the worst of the imbalances between themselves and the developing continents. True, they did it partly

out of self-interest, knowing that political independence must be matched by economic independence if struggling nations are to become stable, self-reliant and resilient world powers. But they were also actuated by a moral purpose — the conviction that the wealth and intellectual power of the Western countries should be used to make this world into the kind of society in which all human beings can live in self-respect as human neighbours and brothers.

Enlightened self-interest and moral purpose go hand in hand; it would be a strange universe, indeed, if they did not. After all, enlightenment consists of being able to see where your own interests and those of your neighbours coincide. In global terms, there can be no greater beneficent coincidence than the need of developing nations to grow and to consume and Canada's need for more markets. In the context of our own vocation, there is an analogous coincidence between Canada's need for high quality dental care and our desire to augment the numbers of dentists and auxiliaries which can make this a reality.

If, then, there is any meaning in the leadership that we so often assert for our profession, it is that every Canadian dentist will donate generously during October — CFDE Month 1976 — so that the promise of our own good fortune may in turn fall on those who will tread in our footsteps.

F. H. Compton, D.D.S.
Former Scientific Editor
Journal of the
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DR. ROBERT S. TURNBULL APPOINTED SCIENTIFIC EDITOR OF CDA JOURNAL

The Executive Council of the Canadian Dental Association has announced the appointment of Robert S. Turnbull of Toronto as scientific editor of the CDA Journal, effective August 1, 1976. Dr. Turnbull succeeds Dr. Frank H. Compton who was full-time editor of the Journal from 1960 to 1972 and, for the past four years, has served as scientific editor on a part-time basis.

A native of Toronto, Dr. Turnbull is a 1966 dental graduate of the University of Toronto. He received his diploma in periodontology in 1971 and his

M.Sc.D. in 1972 from the same university.

Dr. Turnbull was appointed a full-time associate in dentistry at the University of Toronto in 1972, an assistant professor in 1973, and, in 1976, was appointed associate professor with the Faculty of Dentistry. In addition to his teaching duties, Dr. Turnbull operates a private practice in periodontics one day per week and is a member of the dental staff of Mississauga Hospital. He has been, and is currently, involved in several major research projects.



Robert S. Turnbull

Dr. Turnbull is the author of a teaching manual prepared for the complete undergraduate periodontal course, didactic and clinical. In addition, he is the author of various published articles, and a wide range of abstracts which have been presented to international organizations in Canada, the U.S. and Europe.

As scientific editor of the CDA Journal, Dr. Turnbull will be responsible for the assessment of all submitted manuscripts as well as the preparation of these manuscripts in accordance with Journal standards and format.

CONTINUING EDUCATION NOW A REQUISITE FOR LICENSURE IN BRITISH COLUMBIA

The Executive Council of the College of Dental Surgeons of British Columbia recently approved compulsory continuing education as a requisite for licensure in the province.

The Council has directed the continuing education committee to draft regulations in keeping with specific guidelines and to administer these regulations accordingly.

The guidelines are as follows:

1. That the program become effective January 1, 1977.
2. That licences continue to be issued annually but that issuance of each dentist's licence every fifth year be de-

pendent upon providing satisfactory evidence of meeting the continuing education requirements.

3. That the customary judicial processes of the Dentistry Act apply to a dentist who fails to meet the requirements.

4. That a minimum of one report per annum of recorded credits be issued to each dentist.

5. That each dentist be responsible for reporting credits obtained to the College office.

6. That a credit hour system requiring accumulation of 75 credit hours within each five-year period be adopted.

7. That credits be recorded on a calendar year basis. (i.e. credits earned in the calendar years 1977, 1978, 1979, 1980 and 1981 would be considered with regard to licences issued March 1, 1982.) This allows the committee time to review records and make necessary recommendations during January and February, prior to the usual March 1 licence date.

The BC College is developing its system of mandatory continuing education with a view to the future. The end product will be a system compatible with the systems utilized in other provinces.

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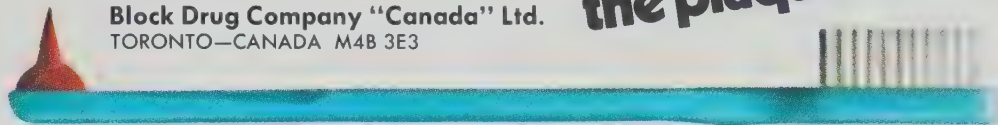
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"YOUR PROFESSIONAL CONNECTION": THEME OF CDA STUDENT MEMBERSHIP CAMPAIGN '76

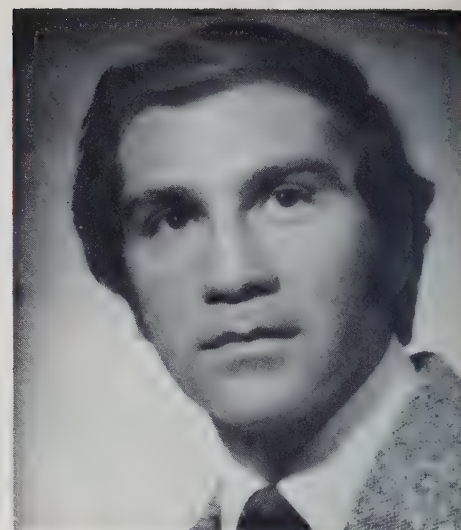
The Canadian Dental Association will launch its student membership campaign '76 in dental schools from coast to coast during the month of September. The theme for this year's campaign is "Your Professional Connection".

During recent years the number of dental students joining the CDA has increased steadily, with 1975 membership figures hitting record levels.

Eligibility requirements are very straightforward: for a single annual fee of \$5.00 any student enrolled in a Canadian faculty of dentistry, or any graduate dentist who has proceeded directly from an undergraduate program to a full academic year of advanced study in an accredited school or hospital program, is eligible for CDA membership and its accompanying benefits. In Ontario, the situation differs in that conjoint CDA/ODA membership is being offered to students at an annual fee of \$10.00. This entitles any undergraduate student in an Ontario faculty of dentistry to the membership benefits of both the CDA and the ODA.

Student membership in the CDA entitles the student to:

- a subscription to the monthly CDA Journal;
- utilize the service of the CDA Audio Cassette Program on the latest dental thinking and newest technical innovations at special student rates;
- access to CDA pamphlets and publications;
- attend and participate in the CDA annual convention;
- qualify for participation in the CDA Student Table Clinic Program;
- select the CDA student representative who, in turn, participates in the annual Canadian Dental Students' Conference where representatives are selected to attend the CDA annual Board of Governors' meeting, the CDA annual Council on Education meeting and the annual meeting of the National Dental Examining Board;
- benefit from membership in the International Association of Dental Students, its student exchange program and its International Congress held annually;
- learn about and identify with the provincial and national bodies of the Canadian dental profession;
- learn about and benefit from national/provincial dental insurance and investment plans.



E. M. Hershenfield

Alpha Omega Fraternity Montreal Alumni Chapter

The Mount Royal Dental Society and the Montreal Alumni Chapter of the Alpha Omega Fraternity recently announced the election of a new executive for the 1976-77 term.

Members are: E. Melvyn Hershenfield, president; Ezra Kleinman, vice-president; William Klein, corresponding secretary; Stephen Miller, recording secretary; Richard Topolski, treasurer; Peter Safran, associate treasurer; Avrum Sonin, editor; and, David Zacharin, archivist.

The Montreal Alumni Chapter of the Alpha Omega Fraternity celebrated its 25th anniversary this spring and the Mount Royal Dental Society, with a membership of close to 300 local dentists, recently marked its 55th anniversary.

Dental Association of Prince Edward Island

During the 1976 annual meeting of the Dental Association of Prince Edward Island, the following members were elected to the executive council: A. D. Crocker, president; A. L. MacLean, Vice-president; I. A. L. Miller, secretary-treasurer and registrar; F. J. Stuart and D. T. O'Connell, members.

CDA IN OTTAWA HEADQUARTERS

Lindsay Mussells, DDS, president of the Canadian Dental Association, is pleased to announce that CDA is now operating from its new Ottawa headquarters building. The address is: 1815 Alta Vista Drive, Ottawa K1G 3Y6. Telephone: (613) 523-1770.

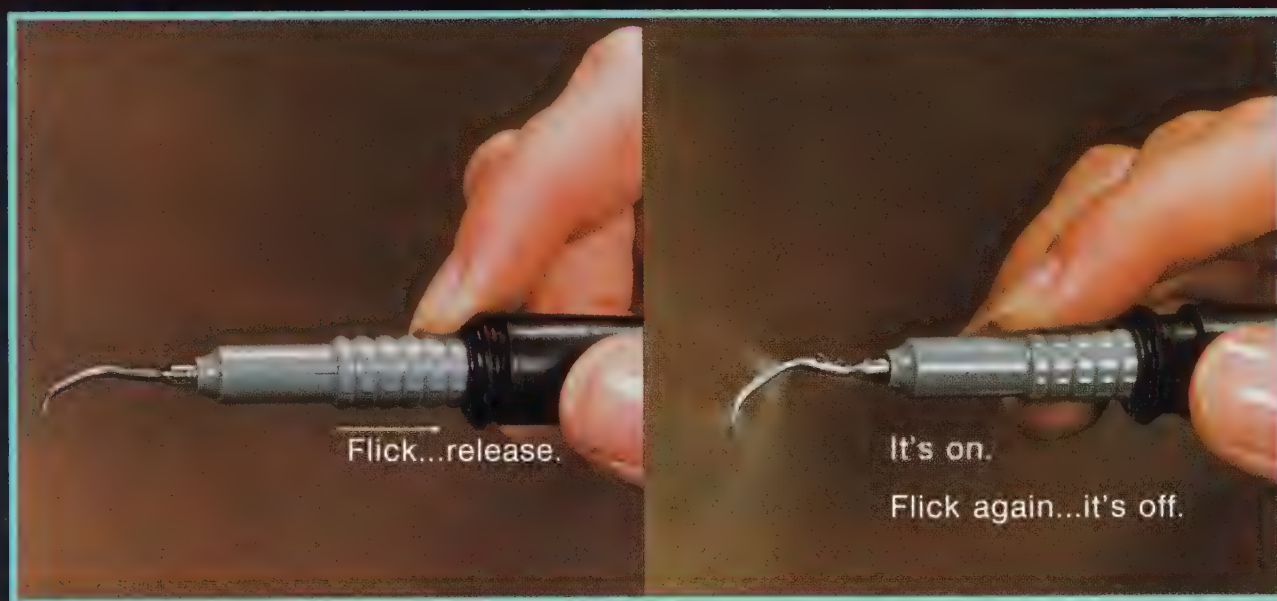
Dr. Mussells also announced that official opening ceremonies for the new headquarters will be held at a later date.

CFDE MOVES TO NEW OFFICE

The Canadian Fund for Dental Education has moved to its new office. The address is: 44 Eglinton Avenue West, Toronto M4R 1A1. Telephone: (416) 481-0650.

Arrangements have, of course, been made to forward all mail sent to the previous address. However, it will speed up delivery if the new address is used from now on.

Fingertip control.



Right here is where the **Powermatic** Unit takes you into a whole new world of ultrasonic prophylaxis.

No more groping or fumbling for the foot control. No power cord to clutter and trip over. The foot control is gone and the operating controls are in the handpiece. *One flick of the fingerswitch and the handpiece* instantly delivers the power you selected and the water flow you selected. Flick again and it's off. A rugged, permanently sealed switching mechanism. A smaller, lighter and comfortably balanced handpiece—"plug-in" type for easy servicing and repair.

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Solid state circuitry for long life and "instant on" readiness. Automatic fine tuning for optimum efficiency of each individual insert. Instrument panel gives direct visualization of power level. Engineered to be the ultimate in ultrasonics for modern dentistry—to make even the most difficult prophylaxis a gentle, easy experience for your patient and you!

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SCIENTIFIC PROGRAM FOR ADA CONVENTION FEATURES BROAD RANGE OF CURRENT TOPICS

The effects of nitrous oxide sedation on the patient and the dentist, the management of cervical lesions, and a dental materials update for 1976 will be among the high points of the scientific program planned for the 117th annual

session of the American Dental Association scheduled November 14-17 in Las Vegas.

The panel on nitrous oxide sedation techniques will examine the physiologic and psychologic effects. Proper

use of this technique with respect to patient selection and management will be discussed, along with the possibility of health hazards to the dentist and office personnel from chronic exposure to nitrous oxide. Panelists will include: Dr. Andrew Tolas of Kent, Washington, who will report on cardio-respiratory effects of N₂O sedation; Dr. Lee Getter of Washington, who will speak on psychomotor effects; and Dr. Ralph Swenson of Seattle, who will describe potential hazards to the dentist.

The program on management of cervical lesions will examine the causes of deformation or breakdown of cervical tooth structure. Experts slated to discuss treatment of cervical lesions will be: Dr. Ronald K. Harris of Parris Island, South Carolina, who will talk about the use of filled and unfilled resins; Dr. Everitt Payne of Beverly Hills, Florida, who will discuss amalgam and pin inlays; and, Dr. Bruce Smith of Seattle, who will report on porcelain and direct gold restorations.

The panel on materials update, 1976, will provide information on recent manufacturer's modifications and related changes in commonly used dental products. Panelists for this session will include: Dr. Richard D. Norman of Indianapolis, who will speak on the use of different cements; Dr. Earl W. Collard of Oklahoma City, who will report on impression materials for indirect operative procedures; and, Dr. Ronald E. Geistfeld of Minneapolis, who will discuss different amalgams.

Pediatric dentists of British Columbia

R. Patton is the newly-elected president of the British Columbia Society of Pediatric Dentists. Other members elected to serve on the executive during the Society's recent annual general meeting include: G. Jinks, vice-president, and G. Ng, secretary-treasurer.

Phony express?

Ever found yourself in an awkward spot because your supplier failed to deliver the supplies he promised. Could be this same supplier expressed some pretty fancy excuses and even more promises . . . but, excuses and promises won't help when you have a patient sitting in the chair.

Face it, Doctor. Your time and your reputation is too valuable to horse around with suppliers who let you down. You're better off dealing with a reliable supplier like Denco, who carries a full line of readily available products and equipment. People who care enough about you and your practice to ensure that any order you place, is on its way the same day.

We deliver
...in more ways
than one.

DENCO





“...but
if you feel
any pain,
take one or two
N 222 * tablets.”

Not every patient needs an analgesic after dental care — but some do, even though you have done everything possible to avoid any patient discomfort.

When a patient is in pain, or when there is a possibility that pain will occur later, suggest N 222 * tablets.

222 * is a reliable analgesic — you and your patient can depend on it.

INDICATIONS: For relief of mild to moderate pain, fever and inflammation as in influenza, common cold, low back and neck pain, headache, trauma, following dental and surgical procedures.

DOSAGE: Adults — 1 or 2 tablets one to three times daily; Children's dosage, when recommended by a physician: 10 to 14 years, one tablet, one to three times daily; 5 to 10 years, one-half tablet, one to three times daily.

CONTRAINDICATIONS: Gastrointestinal ulceration and sensitivity to any of the components.

WARNINGS: Salicylates increase the effects of anticoagulants. Caution is necessary when salicylates and anticoagulants are prescribed concurrently. Also, salicylates may depress the concentration of prothrombin in the plasma. Large doses of salicylates may affect insulin requirements of diabetics. Salicylates may potentiate sulfonylurea hypoglycemic agents. Analgesic abuse (excessive and prolonged therapy) has been associated with nephropathy. TO AVOID

ACCIDENTAL POISONING ACETYSALICYLIC ACID PREPARATIONS MUST BE KEPT WELL OUT OF REACH OF CHILDREN.

PRECAUTIONS: Give with caution to patients with asthma, other allergic conditions, bleeding tendencies, or hypoprotrombinemia. Salicylates can produce changes in thyroid function tests.

Observe care in use of codeine, although tolerance and addiction are rare. Give codeine with caution to patients with severe respiratory depression. Its depressant effect may be enhanced by concurrent administration of sedatives and tranquilizers.

ADVERSE REACTIONS: Acetylsalicylic acid: *Gastrointestinal:* dyspepsia, heartburn, nausea, vomiting, diarrhea, gastrointestinal ulceration and bleeding. *Ear reactions:* tinnitus, hearing loss. *Hematologic:* anemia, leukopenia, thrombocytopenia, purpura. *Dermatologic and Hypersensitivity:* urticaria, angioedema, pruritus, various skin eruptions, asthma and anaphylaxis. *Miscellaneous:* mental confusion, drowsiness, sweating and thirst.

Codeine: Average or large doses may cause various gastrointestinal symptoms such as nausea, vomiting and constipation.

Caffeine: May cause nausea, nervousness, insomnia, headache, vomiting, palpitation, vertigo, muscle tremor, sensory disturbances, excessive diuresis in sensitive patients. Large doses may cause gastric ulceration.

FULL INFORMATION AVAILABLE ON REQUEST

HOW SUPPLIED

N 222* Tablets — White, scored, engraved 222 on one side. Each tablet contains: acetylsalicylic acid 375 mg, caffeine citrate 30 mg, codeine phosphate 8 mg. Available in tubes of 12; bottles of 40 and 100; also bottles of 60 with safety cap.

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(MC-390a)

Teeth benefit most when fluoride given in infancy

Scientists supported by the National Institute of Dental Research studied four groups of children, 1,500 in all, living in two non-fluoridated areas in order to compare the effects of fluoride supplements, started either at birth or age four, on the health of their teeth. The study covered 10 years.

The investigators reported that children with the lowest rates of decay were those who received fluoride from infancy either in drinking water or in supplements. They noted that breast-fed infants receive very little fluoride regardless of the water their mothers drink because human milk lacks this protective substance.

The two non-fluoridated areas were Oneida, New York, and just outside Kalamazoo, Michigan. Children who received no fluoride served as controls. Other children who received no fluoride supplements but lived for the same period in Kalamazoo proper which has fluoridated water were also compared.

The investigators recorded the amount of new decay in both primary and permanent teeth, the percentage of children with no decay, and also the prevalence of decay in six-year molars.

Children who began fluoride supplements at age four showed little difference in decayed *primary* teeth from those who got no supplementary fluoride because by that time the enamel on these had already formed. Although their deciduous teeth gained no additional protection, their *permanent* teeth were protected approximately as well as those of children who drank fluoridated water from birth.

Findings in both groups receiving supplements, at birth and age four, were quite similar. The survey of permanent teeth present at ages seven to ten showed that children give fluoride supplements from birth in the area outside of Kalamazoo had the largest percentage of sound teeth and the lowest average number of new decayed and filled teeth. In contrast, children in the

STATUS OF EDUCATIONAL PROGRAMS

The following list of programs evaluated by the Canadian Dental Association's Council on Education shows the status of various graduate and postgraduate programs in universities across Canada as of May, 1976. Undergraduate dental and dental hygiene programs and dental assisting programs were listed in the August, 1976 issue.

Graduate and postgraduate programs in CDA recognized specialties

Name of university	Program evaluated	Accreditation status awarded
University of Alberta	Orthodontics	Approval
University of Alberta	Prosthodontics	Provisional approval
University of Manitoba	Periodontics	Approval
University of Manitoba	Orthodontics	Approval
University of Manitoba	Oral pathology	Approval
University of Toronto	Pedodontics	Approval
University of Toronto	Orthodontics	Approval
University of Toronto	Oral pathology	Approval
University of Toronto	Periodontics	Approval
University of Western Ontario	Orthodontics	Approval
McGill University	Oral surgery	Provisional approval
McGill University	Prosthodontics	Provisional approval
University of Montreal	Orthodontics	Approval
University of Montreal	Pedodontics	Provisional approval
University of Montreal	Oral surgery	Accreditation eligible

control group had only 29.6 per cent sound teeth and the average number of new decayed and filled teeth was 1.57. The percentage of sound permanent teeth for children given fluoride supplements from age four and for those drinking fluoridated water from birth were similar (41.9 and 43.4 per cent respectively).

The six-year molars were studied because they are the first permanent molars to appear, usually the first to be lost to decay, and the most important for good adult occlusion. Because the outermost layer of enamel forms on these teeth about age four, just before

eruption, it seemed possible that fluoride supplements begun at age four might benefit them. However, significant caries prevention in six-year molars occurred only when the supplements began at birth.

The investigators urge physicians to be aware of the value of prescribing fluoride from infancy (1) in non-fluoride areas and (2) for breast-fed babies regardless of the local water content.

These findings were reported in the July, 1975, issue of the *American Journal of Diseases of Children*.

More news on page 439

When it comes to the crunch



Crunchy foods— the toughest test for dentures and the denture wearers' confidence.

Your skill as a dentist assures well fitted dentures but patients still need self assurance and confidence.

You can help new denture wearers over the crucial break-in period by recommending Wernet's adhesive, powder or cream.

The extra cushioning and gripping power of Wernet's ease those first difficult weeks for tender gums.

When there are anatomical problems, or when the new denture wearer experiences emotional difficulties in adapting to the new denture, Wernet's thermostable formula is the ideal adhesive.

Help your patient return to a normal diet, recommend Wernet's.

Write for free professional samples of
Wernet's adhesive powder or cream—
the confidence builders.

**Give them Wernet's
—the confidence builders—**

BLOCK DRUG COMPANY (CANADA) LTD.
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"QUALITY PRODUCTS FOR DENTAL HEALTH"



CUSO RECRUITING DENTISTS

Lynn McKee
CUSO Public Affairs

CUSO today has 900 Canadians working in about 35 developing countries of Africa, Asia, Latin America, the Caribbean, and the South Pacific. Contracts are generally for two years and transportation costs are paid by CUSO. Medical, dental and life insurance are provided. Salaries are paid by the overseas employers and are approximately what local personnel overseas would receive. This is quite adequate to live comfortably, though not ostentatiously.

Anyone interested in the CUSO program can get further information by contacting CUSO Health, 151 Slater St., Ottawa, K1P 5H5.

Dentistry in Canada implies hygienic surroundings, availability of equipment, and opportunity for consultation with colleagues. Preventive dentistry supposes application of extraordinary measures to impede foreseen complications.

Such is not the case in Nigeria.

CUSO has responded to Nigeria's requests for dentists since 1970, when two graduates of the University of Toronto were placed in Makurdi. In 1973, Michael Simpson, a dental graduate of McGill University, and Murray Dickson, a University of Alberta dental graduate, were sent to replace them. They were to staff the government dental centre and initiate a regular training program. Completely portable ADEC equipment and a van for transport were provided through CUSO.

CUSO health volunteers work as civil servants in the requesting country. Dr. Simpson and Dr. Dickson were employed by the ministry of health and were responsible to a Nigerian chief dental surgeon. They were free to develop a program of their own design within the town of Makurdi. Duties were rotated: one dentist worked in area schools with the portable equipment, while the other staffed the hospital dental centre.

Commenting on his experience as a CUSO volunteer, Dr. Dickson explains:

"The dental centre sees all types and variations of possible dental problems. The majority are complaints requiring extraction as patients don't report until the complaint is irreversible and complicated. We try to take advantage of their presence in the dental centre to offer some simple suggestions as to how they might prevent the recurrence of a similar problem. Patients are usually receptive to the advice given, and are most grateful to get a fresh start following a thorough scaling procedure. A simple routine, incorporating oral hygiene instructions and demonstrations, has been structured by our staff and is offered whenever possible. The local market yielded a certain diameter of cotton string which closely resembles dental floss when divided. We demonstrate its use to selected patients, and have recently been able to provide the real thing thanks to the Alberta Dental Association which forwarded individual samples.

"The fact that Nigeria is accumulating oil reserves has resulted in an in-

crease in consumer demand for bicycles, motorcycles and cars. With the increase in the number of vehicles on the road has come a dramatic increase in the number and frequency of mandibular and middle facial fractures. We reduce and fixate a fracture about every two weeks, and refer more serious cases to the Maxillo-Facial Unit some 300 miles away in Kaduna.

"Textbook oral pathology cases are numerous, ranging from pyogenic granulomas to fibro-osseous lesions and caveinoma. We use our own clinical knowledge and reference textbooks for diagnosis. Unfortunately, there is no means for histologic examination of biopsies, so diagnosis is tentative. If the lesion appears benign we try to provide the surgery or treatment here (e.g. enlevation, marsupialization). If we feel that we are over our heads, we are able to refer the patient to the same maxillo-facial unit."

Conditions are not what Canadian-trained dentists expect. Neither are they as "primitive" as one might think. Dr. Dickson explains:

"Our surgery assistants are experienced people, having been trained in the colonial days by British dentists. The previous CUSO dentist taught them the use of the Cavitron¹, and we worked out a reasonable approach to providing oral hygiene instruction. They are also trained to take x-rays of areas designated by us. Routine x-rays are simply not done because of the vintage of the machine. The number of patients seen each day — 25 to 45 — and their insistence on specific treatment.

1. L. D. Caulk Co. of Canada.

DEATHS

Parsons, Leslie Alexander William, 48. Calgary. University of Alberta, 1968. 13-6-76. Survived by Helen Elaine (wife); Leslie John and Robert Kim (sons).

Potter, Wilfred Albert, 76. Niagara Falls, Ont. University of Toronto, 1927. 29-6-76. Survived by Audree (wife); Peter and Wilfred (sons); Mrs. Zoltan Janvary (daughter).

Smith, N.C. 80. Thessalon, Ont. Royal College of Dental Surgeons of Ontario, 1923. 26-6-1976. Survived by Jean (wife); Norman Ronald (son); Mrs. Bill Birch (daughter).

Soules, Cecil, 84. Toronto. Royal College of Dental Surgeons of Ontario, 1914. 22-6-1976.

New dental society formed in Kamloops

The recently-formed Kamloops and District Dental Society is expected to provide a valuable educational and social medium for the growing number of dentists in this area of British Columbia. The group's annual agenda will consist of two clinical seminars, five business meetings and one social function.

The executive of the new organization consists of: Doug Takahashi, president; Ray Allegretto, secretary-treasurer; and, Roy Queen, Geoff Collier, and Larry Uglene, program directors.

CUSO recruiting dentists . . .

ment only, prevents us from providing the thorough examination we might like."

There are frustrations and disappointments in any overseas posting. Of course, the same is true of Canadian practice. Working and living in another culture, however, often has built-in compensations. For Dr. Dickson, one of these compensations was the people of the area. He found that his patients

In memoriam

Lawrence Glenn Craigie

It is with regret that the Canadian Dental Association announces the death of Brigadier-General Lawrence Glenn Craigie of Borden, Ontario, on July 29, 1976, at the age of 59.

Born in Kamsack, Saskatchewan, General Craigie graduated from the University of Toronto's Faculty of Dentistry in 1943. Immediately following his graduation he enrolled in the Canadian Army (Canadian Dental Corps), serving in several dental units in Canada until demobilization in 1946. He then entered private practice in Moose Jaw for two years.

His Regular Force career began in 1948 when he re-enrolled as a Dental Officer in the Canadian Army. Since that time General Craigie has served in a number of appointments, including: command of the Field Dental Unit with the Canadian Air Division in Europe; successive appointments in National Defense Headquarters as Dental Public Health Officer, Senior Consultant, Director of Dental Staffing and Training, and Deputy Director General of Dental Services; Commandant of the Canadian Forces Dental Services School (CFDSS).

In November, 1973, he was appointed Director General of Dental Services for the Canadian Armed Forces.

During his service as Commandant of the CFDSS, General Craigie was charged with responsibility to organize and implement a re-training program



for immigrant Czechoslovak dentists. The successful conclusion of the program further enhanced the already favorable relationship between the Canadian Forces Dental Services and the civilian dental profession.

His eminence in the field of training of dental tradesmen has gained him international recognition, as exemplified by a request from the U.S. Department of Health, Education and Welfare for his participation in studies relative to training programs for expanded dental auxiliary duties in the United States.

General Craigie was awarded the Canadian Forces Decoration in 1957 and was made a Fellow of the International College of Dentists in 1969. He holds the appointment of Honorary Dental Surgeon to Her Majesty Queen Elizabeth II. In 1975, he was invested in the Order of St. John in the rank of Officer.

always had folklore and history to be shared, and he, in turn, provided comic relief with his attempts to master the local language.

Dr. Dickson found his posting in Nigeria as much a learning experience as a teaching one: "... the learning experience I have gained on all fronts, from personal associations to dental practice, made my stay a most enjoyable one. Hopefully, I have learned to

be more tolerant of differences, and more accepting of people's wants and objectives and their means of obtaining them. There may be more than one answer to any given question, and it is not necessarily our Western approach. My interest in learning from other cultures has been maintained. In fact, my family and I plan to work in Northern Canada for a time and then perhaps go overseas with CUSO again."

LE DR ROBERT S. TURNBULL EST NOMME AU POSTE D'EDITEUR SCIENTIFIQUE DU JOURNAL DE L'ADC

Le Conseil Exécutif de l'Association dentaire canadienne vient de nommer le Dr Robert S. Turnbull au poste d'éditeur scientifique du Journal de l'ADC. Cette nomination est entrée en vigueur le 1er août 1976. Dr. Turnbull succède au Dr Frank H. Compton, éditeur à plein temps du Journal de 1960 à 1972 et, ces quatre dernières années éditeur scientifique à temps partiel.

Né à Toronto, diplômé de la Faculté dentaire de l'Université de Toronto en 1966, le Dr Turnbull a obtenu, également à l'Université de Toronto, son diplôme de spécialiste en parodontolo-

gie en 1971 et son M.Sc.D. en 1972.

En 1972, le Dr Turnbull est nommé à plein temps à la Faculté dentaire de l'Université de Toronto; en 1973, il devient professeur-adjoint (assistant professor) et en 1976, il est nommé professeur associé (associate professor). Outre ses activités dans le domaine de l'enseignement, le Dr Turnbull exerce la parodontologie en cabinet privé un jour par semaine et il fait également partie du personnel dentaire de l'Hôpital Mississauga. Il participe actuellement, tout comme par le passé, à plusieurs importants programmes de recherches.

Le Dr Turnbull est l'auteur d'un manuel qui comprend un cours universitaire complet en parodontologie — des points de vue didactique aussi bien que clinique. Il a également collaboré à divers articles publiés ainsi qu'à un grand nombre de compte-rendus présentés à différents organismes internationaux au Canada, aux États-Unis et en Europe.

A titre d'éditeur scientifique du Journal de l'ADC, le Dr Turnbull sera chargé de l'évaluation de tous les manuscrits soumis ainsi que de la préparation desdits manuscrits conformément aux normes et au format du Journal.

L'EDUCATION PERMANENTE CONSTITUE AUJOURD'HUI UNE CONDITION REQUISE POUR OBTENIR LE PERMIS D'EXERCER EN COLOMBIE-BRITANNIQUE

Le Conseil exécutif du Collège des chirurgiens dentistes de C.B. vient d'approuver un règlement stipulant qu'à partir de maintenant, l'éducation permanente constituerait une condition obligatoire d'obtention du permis d'exercer dans la province.

Le Conseil a invité le comité sur l'éducation permanente à rédiger des règlements conformes à certaines directives spécifiques et de les appliquer en conséquence.

Il s'agit des directives suivantes:

1. Le programme entrera en vigueur le 1er janvier 1977.
2. Les permis d'exercer continueront à être émis annuellement, mais la délivrance tous les cinq ans, du permis destiné à chaque dentiste sera subordonnée à la présentation de preuve suffisante indiquant que celui-ci a satisfait aux exigences se rapportant à l'éducation permanente.
3. Les procédures judiciaires normales suivies aux termes de la Loi des dentistes, s'appliqueront aux dentistes qui ne seront pas en mesure de satisfaire aux exigences.
4. Les dentistes recevront un minimum d'un relevé par an indiquant les crédits qu'ils ont obtenus.
5. Les dentistes seront tenus de faire part au Secrétariat du Collège des crédits qu'ils ont obtenus.
6. Un système d'heures-crédits sera mis sur pied, imposant l'accumulation de 75 heures-crédits pour toute période de cinq ans.
7. Les crédits seront enregistrés sur une base annuelle (c'est-à-dire que les permis délivrés le 1er mars 1982, seront émis sur la base des crédits obtenus au cours des années civiles 1977, 1978, 1979, 1980 et 1981). Cette procédure permettra au comité d'étudier les données et de faire les recommandations nécessaires au cours des mois de janvier et de février avant la date normale de délivrance des permis, soit le 1er mars.

Le Collège de C.B. est en train de mettre sur pied un système ayant trait à l'éducation permanente obligatoire à l'avenir. Les résultats obtenus constitueront une procédure compatible aux méthodes utilisées dans d'autres provinces.



TOUS LES DENTIFRICES AU FLUORURE NE SONT PAS PAREILS.

Les dentifrices au fluorure diffèrent dans leurs formules et leurs propriétés. Nous croyons que Colgate avec MFP a des avantages spécifiques que vous devez connaître.

Action du MFP. Des études cliniques démontrent que le MFP (monofluorophosphate de sodium de Colgate), utilisé dans des conditions de brossage normales, est efficace pour transformer la couche d'apatite à la surface de la dent (un hydroxyphosphate de calcium) en fluorapatite (un fluorophosphate de

calcium). La dent devient ainsi plus résistante à la carie.

MFP = stabilité. Si on entrepose certains dentifrices pendant un an, ils peuvent perdre la moitié de leurs ions de fluorure, mais le fluorure MFP de Colgate* est plus stable. En effet, même après trois ans, le monofluorophosphate de sodium demeure en grande partie soluble et peut encore agir sur l'émail des dents.

MFP = problème de taches éliminé. Tandis que certains dentifrices ont tendance à tacher les dents, il

est bon de savoir que Colgate avec MFP ne présente pas ce problème.

La prochaine fois que la mère d'un enfant sujet aux caries demandera votre avis sur les dentifrices au fluorure, souvenez-vous de Colgate avec MFP...un traitement au fluorure amélioré.

Monographie du produit expédiée sur demande. Adressez-vous à: Services professionnels, Colgate-Palmolive Limited, 64, avenue Colgate, Toronto, Ontario M4M 1N7.



"Colgate avec MFP s'est révélé un dentifrice préventif contre la carie dentaire et son emploi peut avoir une valeur importante lorsqu'on l'utilise dans le cadre d'un programme d'hygiène buccale exécuté avec application et de soins dentaires professionnels réguliers."

L'Association Dentaire Canadienne.

Colgate-Palmolive Co.

*Marque déposée

"LA LOI RELATIVE AUX ENQUETES SUR LES COALITIONS" EST MODIFIEE

A l'exception du paragraphe 32, la "Loi relative aux enquêtes sur les coalitions" applicable aux industries des services généraux est entrée en vigueur le 1er janvier 1976. Le paragraphe 32 de la Loi, interdisant tout accord qui diminuerait indûment la concurrence, s'applique aux services depuis le 1er juillet 1976.

Au début du mois de juin, le Directeur des enquêtes et recherches de la "Loi relative aux enquêtes sur les coalitions" a écrit à M. Lloyd Stevenson, Directeur exécutif par interim de l'Association dentaire canadienne, lui communiquant divers renseignements relatifs aux modifications portées à la loi et à l'application de celle-ci en ce qui concerne les industries des services, y compris les services offerts par les membres de l'ADC. Le but spécifique de la lettre était "d'obtenir un acquiescement volontaire en regard des stipulations de la loi, ainsi que d'obtenir toute collaboration possible pour faire connaître aux membres de l'Association et des organismes affiliés, les modifications portées à la politique sur la concurrence au Canada".

Bien que l'ADC ne participe nullement à la préparation ou à la distribution de Guides d'honoraires, M. Stevenson s'est mis en rapport avec les conseillers juridiques de l'Association et leur a demandé de préparer un projet de lettre concernant la modification de la loi. Ce projet de lettre a été envoyé à toutes les corporations professionnelles provinciales; ces dernières ont été invitées à le transmettre à leurs membres et tous les dentistes du Canada seront ainsi mis au courant du fait suivant: le Guide d'honoraires n'est qu'un barème consultatif de directives et les membres ne sont nullement tenus de l'adopter.

Voice le projet de lettre conçu par les conseillers juridiques de l'ADC:

"Ainsi que vous le savez peut-être, la "Loi relative aux enquêtes sur les coalitions" vient de subir certaines modifications qui auront des conséquences importantes pour notre profession. Auparavant, l'application de la loi se limitait au commerce d'articles, alors que les industries des services et les professions, y compris l'exercice dentaire, n'étaient soumises à aucune de ses dispositions. A la suite des nouvelles modifications la portée de la Loi s'est étendue pour s'appliquer également aux services et professions, ce qui aura pour effet de délimiter jusqu'où on peut restreindre la concurrence dans les professions.

"La principale modification relative à notre profession se rapporte au paragraphe 32 de la Loi, qui depuis son entrée en vigueur le 1er juillet 1976, stipule les articles suivants:

"32. (1) Est coupable d'un acte criminel est passible d'un emprisonnement de cinq ans ou d'une amende d'un million de dollars, ou de l'une et l'autre peine, toute personne qui complote, se coalise, se concerte ou s'entend avec une autre

- a) pour limiter indûment les facilités de transport, de production, de fabrication, de fourniture, d'emmagasinage ou de négoce d'un produit quelconque;
- b) pour empêcher, limiter ou diminuer, indûment, la fabrication ou production d'un produit ou pour en élever déraisonnablement le prix;
- c) pour empêcher ou diminuer, indûment, la concurrence dans la production, la fabrication, l'achat, le troc, la vente, l'entreposage, la location, le transport ou la fourniture d'un produit, ou dans le prix d'assurances sur les personnes ou les biens; ou
- d) pour restreindre ou compromettre, indûment de quelque autre façon, la concurrence.

"Dans ce paragraphe, la définition du terme "produit" comprend un service professionnel et celui de "fourniture" comprend la fourniture ou l'offre d'un service professionnel. Toute référence dans ce paragraphe à la fourniture d'un produit comprend donc l'offre ou la fourniture de services professionnels dentaires.

"Par suite des modifications indiquées, en vertu des stipulations de la "Loi relative aux enquêtes sur les coalitions", les membres de la profession dentaire ne pourront légalement faire un accord pour diminuer indûment la concurrence lorsqu'il s'agit de la fourniture de services dentaires et autres frais. Ainsi, un accord fait par des dentistes concurrents, en vue d'établir des tarifs uniformes et minima en paiement de services de même catégorie, de partager une entreprise ou de ne pas fournir de traitements aux patients d'une région donnée, pourrait constituer une infraction. Par exemple, si les dentistes d'une certaine région se mettaient d'accord pour adopter le barème des honoraires fixé par le Guide des honoraires publié par l'Association, ils seraient sans doute coupables d'infraction en vertu du paragraphe 32 de la Loi.

"Les conseillers juridiques de l'Association étudient actuellement les conséquences des modifications qui ont été portées à la "Loi relative aux enquêtes sur les coalitions" en ce qui concerne le Guide des honoraires et diverses autres questions telles que les restrictions dans le domaine publicitaire: nous vous ferons part des suites qui seront données à ces questions. Pour l'instant, nous saisissons l'occasion de vous rappeler que le Guide des honoraires publié par l'Association n'est qu'un barème consultatif de directives et que les membres ne sont nullement tenus de l'adopter."



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CFDE — A HELPING HAND

Marjorie Dimitri, R.D.H.
Editor/Past President
Canadian Dental Hygienists' Association



Marjorie Dimitri

The students of Ancient Greece may have been able to learn from Aristotle while following him around during the day listening to peripatetic lectures; or grouped in the shade of a classic Greek porch, they may have learned the way of equanimity from the Stoic philosophers. In medieval times, Chaucer's scholar was able to get his lodging and food by scrivening for the town's folk and still do his learning and teaching "gladly". For the modern student, however, advanced learning comes with a large price tag attached.

Fortunately, today more and more agencies and organizations are becoming interested in providing ways and means of enabling individuals of ability and promise to complete their studies. Such an agency is the Canadian Fund for Dental Education. Since its establishment in 1962, the CFDE has a commendable history of encouraging and financially supporting all aspects of dental education and research in Canada. In recent years, the CFDE trustees have also taken an active interest in the dental auxiliary professions as well.

Dental hygiene's liaison with CFDE was initiated in 1969 when the Canadian Dental Hygienists' Association established a \$3,500 trust fund in their name, the income of which was to be used in perpetuity for the sole benefit of dental hygienists. Shortly thereafter, it was mutually decided that scholarships for dental hygiene students should be offered in each of the nation's schools. Subsequently, twenty-seven \$200 scholarships were awarded to outstanding first year students: outstanding in the sense of academic excellence and participation in organized undergraduate activities. In 1974, with the full approval of the CDHA Executive, it was decided to abandon the undergraduate scholarship program, at least temporarily, in order to concentrate on teacher training fellowships.

The CFDE trustees have always been convinced that highly qualified teachers are the heart of any educational program and for many years have offered such fellowships to assist dentists in pursuing teaching careers. Over the years, the Fund became increasingly aware of the inevitable demand for highly qualified dental hygiene educators and since 1969, \$22,400 has been invested in the future of the dental hygiene profession with 17 teacher training fellowships being awarded to 12 hygienists. With the increasing

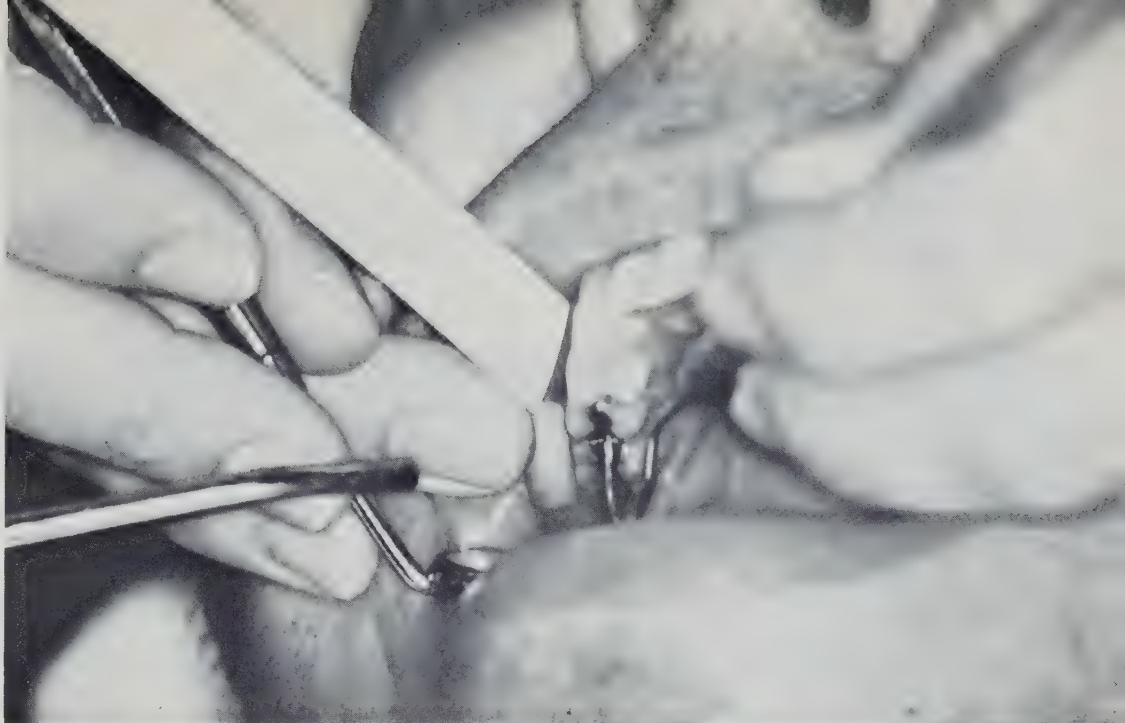
costs of education, there is no doubt that these awards were appreciated and of significant advantage to these individuals. All fellowships recipients must certify that they intend to teach on a full-time or half-time basis at a Canadian institution conducting a program of undergraduate professional education in dentistry or dental hygiene. Minimum responsibility in this regard consists of one year's service to a faculty for each year of support.

In another direction, the CFDE has recognized the fact that increased awareness of the impact of the full spectrum of dental auxiliary education, licensure and practice is of utmost importance in the delivery of quality dental services. As a result, in January of 1974 the CFDE funded the CDA Conference on Dental Auxiliaries. This meeting supplied the first major link in communication among the members of the dental health team in Canada and the results of the intensive workshop discussions have since been considered and further developed by the respective associations.

More recently, the CFDE again demonstrated its interest in advancing dental hygiene education by financing the CDHA Workshop for Clinical Dental Hygiene Educators which was held in Winnipeg in June 1976. This workshop provided a unique forum for discussions relating to common interests and concerns of those involved in dental hygiene education. The opportunity to meet formally on a national basis and to share information and techniques was invaluable. Currently, the Education Committee of the CDHA is planning another workshop for dental hygiene education advisors for which funding has been approved by the CFDE.

The Canadian Fund for Dental Education has a vast stake in all aspects of dental and dental auxiliary education and research, and the CDHA sincerely appreciates their encouragement and support which have been influential in the growth and achievements of the dental hygiene profession in Canada. With increasing support, it may be hoped that the Fund will be able to, in even more productive ways, encourage programs that will ultimately help us to achieve our common goal of better dental health for all Canadians. The CFDE has recognized that the most valuable of all capital is that invested in human beings and it is hoped that you too will show this same interest during "October is CFDE Month".

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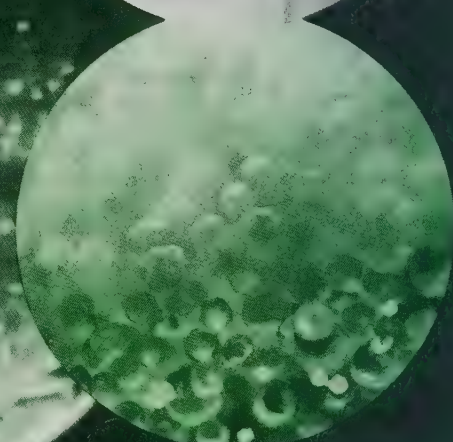
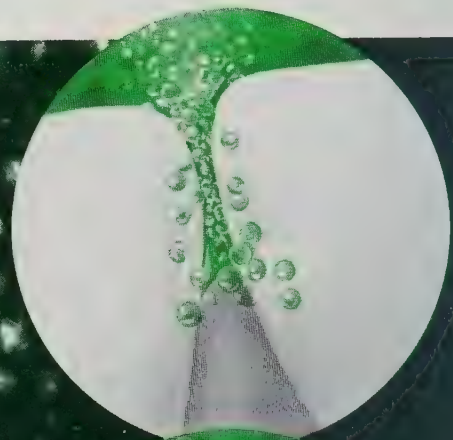
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SIMPLE METHODS OF ACCOMMODATING TO FAST DENTAL X-RAY FILMS

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Four different methods of reducing the amount of radiation for exposure of fast dental x-ray films are described. They are: (1) reducing exposure time on machines equipped with electronic timers, (2) reducing the milliamperage output, (3) adopting the extension cone paralleling technique, and (4) increasing the filter thickness. Also outlined is a simple method of assessing exposures with new dental x-ray machines.

On a décrit quatre différentes méthodes pour réduire le taux de radiation subie pendant que le sujet est exposé à la radiographie rapide des dents. Il s'agit de: (1) réduire le temps d'exposition grâce à des machines équipées de chronomètres électroniques, (2) réduire la sortie en millampérage, (3) adopter la technique au cône prolongé, (4) augmenter l'épaisseur du filtre. On a également mentionné une méthode simple d'évaluation de l'exposition provenant des nouvelles machines de radiographie dentaire.

When Kodak Canada Ltd. recently announced cessation of the manufacture of its Radiatized[®] x-ray film,¹ many dentists began to wonder whether this spelled the beginning of the end for the slower dental x-ray films. Although other manufacturers have yet to decide about their own brands of the slower film, there is a feeling that its days may be numbered.

Moreover, individuals and groups²⁻⁴ concerned with radiation hygiene have long been outspoken about the necessity of using faster film to reduce radiation exposure to the patient, operator, and other personnel. Since Kodak Ultra Speed[®] film, introduced in 1955, is approximately six times faster than Radiatized[®] film, it yields only one-sixth

of the patient exposure of Radiatized[®] film. The image on the faster film is slightly more granular but this is almost imperceptible unless the films are projected. And since granularity does not seem to interfere with definition of the image, there is little reason for avoiding the faster film.

This article, therefore, explains how a dentist or his service technician can alter an x-ray machine to permit use of the faster film or assess dental x-ray exposures with new machines.

Testing device to obtain correct exposure

The dentist should have some standard whereby the effects of any change in equipment or processing methods can be compared with his previous results. One such device is the Spectroline[®] Dental X-Ray Analyser (Spectronics Corporation, 29 New York Ave., Westbury, Long Island, NY 11590), which consists of an aluminum and lead sandwich to create a clear, a gray and a black area on the film. This analyser can be used with various x-ray machines and standard processing to compare exposure times or, by making identical exposures, to compare various processing methods.

One can also make an analyser with an extracted tooth embedded in plastic which provides absorption comparable to that of the soft tissues of the cheek and the mandible. This is an ideal device for the graduating dental student. By making a test exposure with his newly installed machine and comparing it with exposures from a known standard x-ray machine, he can calculate satisfactory exposure times without irradiating a patient.

The tooth must be embedded in a thickness of 2.54 cm (1 inch) of clear plastic.⁵ So-called "clear" dental repair resins are unsatisfactory because they yield a milky plastic in which the tooth cannot be seen. Suitable clear plastic casting resins are obtainable from a hobby supply shop or from Lewiscraft (40 Commander Blvd., Agincourt, Ontario

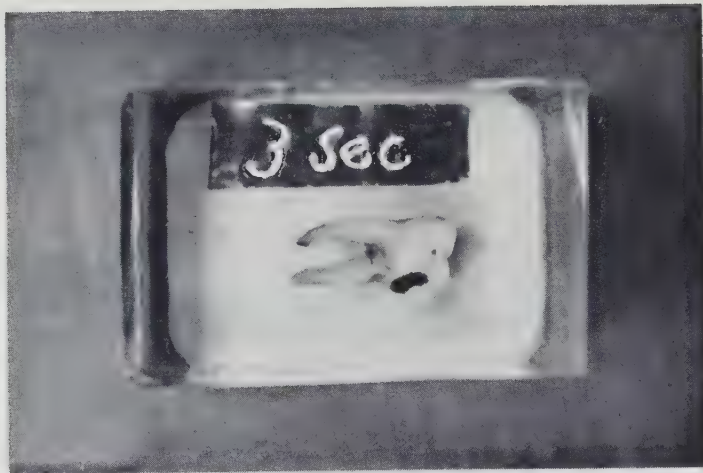


Fig 1A The device for testing exposure value is made by embedding an extracted tooth in a plastic clear coating resin to a thickness of 2.54 cm. The absorption of radiation with this device is similar to that of soft tissue and mandible.

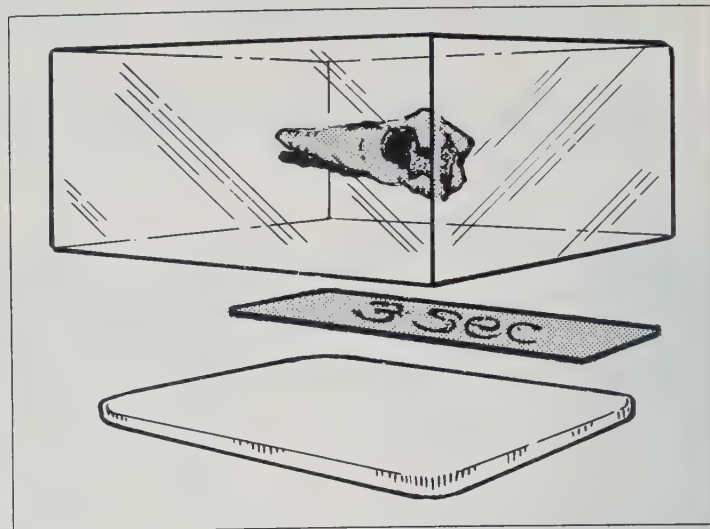


Fig 1B Prior to exposure, the plastic block with the embedded tooth is placed over a film packet on which a lead strip has been placed (the lead backing from a film packet) and on which is written the trial exposure time for that film. The tube of the x-ray machine is positioned 75 mm (3 in) from the film which would equal the distance of the tube to the film when placed in the mouth.

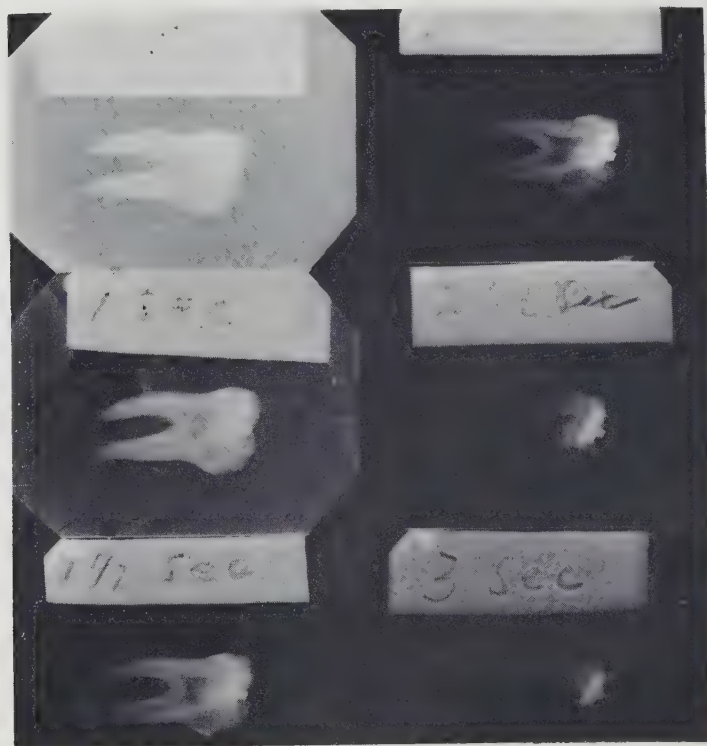


Fig 2 Resultant radiographs of the tooth embedded in plastic which have been given exposures of 1, 1½, 2 and 2½ seconds. Thus the overexposed film (2 seconds) when over-developed is too dark, but the correctly exposed film (1½ seconds) when over-developed is still satisfactory.

M1S 3S2), Tandy Leather Company of Canada (1 John St., Barrie, Ontario) or Ward's Natural Science Establishment Inc. (P.O. Box 1712, Rochester, NY 14603, USA) who manufacture Ward's BioPlastic (Fig 1a,b).

Determination of proper exposure time is based on the fact that over-development of a properly exposed film does not produce significant blackening of the film. Therefore, a series of test exposures can be made and all of them given double the normal developing time at the proper temperature. Over-development will blacken over-exposed films but not those that were under-exposed or properly exposed (Fig 1, 2).

The faster films need far less exposure (approximately one-sixth of the time required by slower Radiatized® films).

Methods for reducing exposure

There are several ways of reducing exposure from the machine:

1. Reducing the exposure time. If the machine has a mechanical timer, however, it could be replaced by an electronic timer because mechanical timers are inaccurate at settings of less than one second. Otherwise, one of the alternate methods must be used.
2. Reducing the milliamperage output of the machine. This is the simplest method. For example, a 17.5 mAs (milliampere seconds) exposure time for Radiatized® film ($1.75 \text{ seconds} \times 10 \text{ milliamperes}$) reduced by six ($17.5 \div 6$) would yield an mAs of 3. Since the mAs is the product of milliamperage and time, one must now find the mA which when multiplied by 1 second (the lowest mechanical setting that is accurate) will give 3 mAs. This is 3 mA. On most machines the milliamperage can be adjusted accordingly by the dentist or by a service technician. Trial exposures at times close to 1 second with the model described above should be developed for double the correct time to show the proper exposure.

3. Changing to the extension cone paralleling technique. Since radiation, like visible light, follows the inverse square law, any increase in distance from the source of radiation reduces exposure by the square of the increase. Thus, doubling the distance from the source of radiation means that one-quarter of the original radiation will reach the film. The change to the extension cone paralleling technique is as follows. The exposure time (originally 1.75 seconds at 10 mA = 17.5 mAs) could be changed to 1.25 seconds at 10 mA which would alter the mAs (to 12.5 mAs). At the 16 inch target film distance (using the extension cone) the mAs

Continued on page 452

EFFECTS OF VARYING PEAK KILOVOLTAGE AND FILTRATION ON DIAGNOSTIC DENTAL RADIOGRAPHS

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Dental bitewing radiographs were exposed under standardized conditions to determine the effects varying peak kilovoltage and filtration in film density, contrast and skin exposure. Density differences between various shades of grey were more evenly spaced at 90 kVp than at 70 kVp despite some loss of contrast at the higher kilovoltage. Bitewing film exposed at 80 kVp, 15 mA 30 cycles, and 3 mm aluminum filtration gave the most suitable compromise in this study.

When exposing a dental radiograph the operator controls several variables which influence the diagnostic value of the film. This poses such questions as: How does peak kilovoltage affect the contrast and density of the film? What effect does filtration have? What limits the range of film density? How much radiation does the patient receive when a single film is exposed? What effect does alteration of peak kilovoltage have on the radiation exposure of the patient?

The answers to these questions were obtained by exposing a series of films under standardized conditions, altering one variable at a time and measuring film density and radiation exposure to the skin of the patient.

Experimental procedure and results

Two series of bitewing films were exposed in a phantom head containing adult human teeth and jaws embedded in material to simulate the living soft tissues. The positions of the head, the film and the x-ray machines were standardized so that successive films could be compared. Two dental x-ray machines were used: a General Electric Co. (GE 100) and an S.S. White Co. (Spacemaker 90).

The first series of bitewing films was subjected to increasing exposure increments of 10 mR measured at the skin

surface over the range of 5-400 mR. Peak kilovoltage potentials of 90, 70 and 50 kVp were used with a total filtration of 3 mm aluminum, using a 40 cm (16 inch) cone. The long cone was used as it produces an image with less distortion and by its use radiation to the patient is reduced as shown by Alcox.¹

The radiation output of the machines was measured by a Victoreen 666 Fluoroscopic survey meter and by thermoluminescent dosimeters.² In the latter, lithium fluoride crystals (TLD — 100) were used. This method of measurement involves the exposure of annealed crystals of lithium fluoride to a source of radiation whereby they become altered in such a way that they emit visible light when heated. The light intensity is proportional to the exposure, and is measured by a digital readout electrometer. The procedure was standardized against a known Ra²²⁶ source. Readout of the exposed crystals was performed on the same day to eliminate any danger of deterioration. The TLD-100 crystals were placed on the skin surface in the centre of the beam or on the film surface itself. All films were processed in an automatic processor to standardize the procedure as much as possible.

With the second series of bitewing films, peak kilovoltage was decreased in five steps (90, 85, 80, 75 and 70 kVp); filtration was decreased in three steps (3.5, 3.0 and 2.5 mm aluminum) and the time was varied from 15 to 40 cycles at 15 mA. The density of the films was measured by a Macbeth Densitometer capable of measuring the density of an area as small as 2 mm in diameter and by a Scanning Densitometer 377 (Instrumentation Laboratory Inc.) with a slit size of 0.2 by 2.0 mm.

Film density

For simplicity film density is expressed as the percentage of light passing through the film as follows: a completely

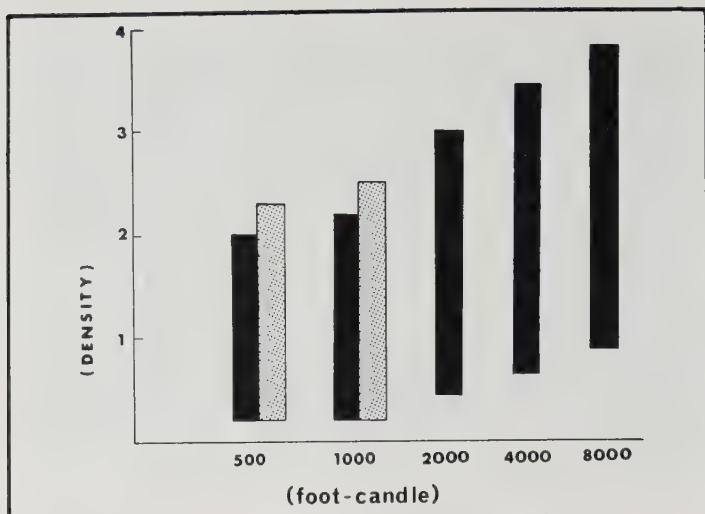


Fig 1 Visual discrimination range of film density under different lighting conditions. Black columns: normal room lighting. Grey columns: subdued lighting.

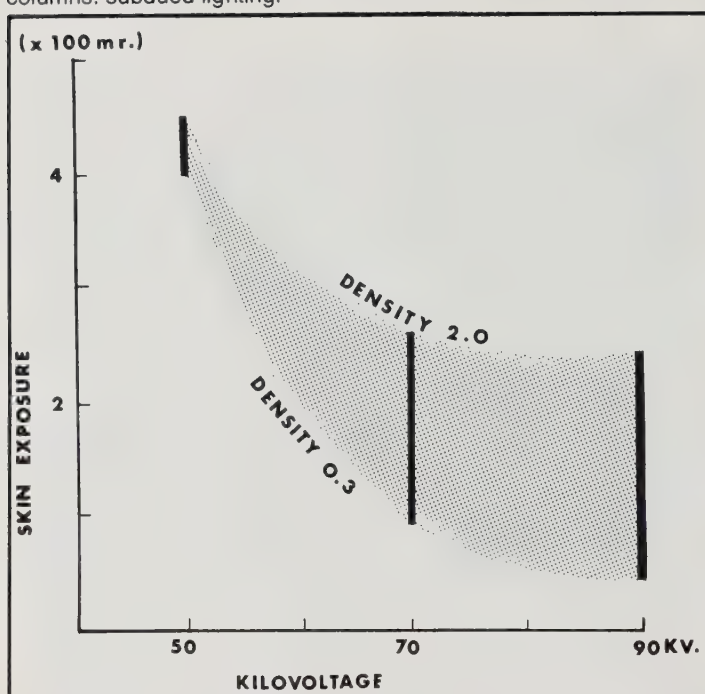


Fig 2 The limits of exposure at different kilovoltages to produce film densities between 0.3 and 2.0.

clear film transmitting all the available light (100 per cent) has a density of 0; if only 10 per cent of light is transmitted the density is 1; if 1 per cent of light is passed the density is 2; if 0.1 per cent the density is 3, and if only 0.01 per cent is transmitted, which is a very dark film indeed, the density is 4.

A third series of films was exposed at the end of the cone in 10 mR dose increments measured at the film surface. The peak kilovoltage was varied in three steps (90, 70 and 50 kVp). On viewing this series of blank but exposed films by transmitted light on a conventional view box, the lightest most transparent films appear white and of dazzling brightness and the denser films appear grey or black. The "whiteness" of most transparent films is limited by the brightness of light that can be tolerated by the eyes. With a conventional view box this brightness is 500 foot candles. A light brighter than this can only be tolerated for short periods of time unless a tinted light is used. If a Verd-A-Ray

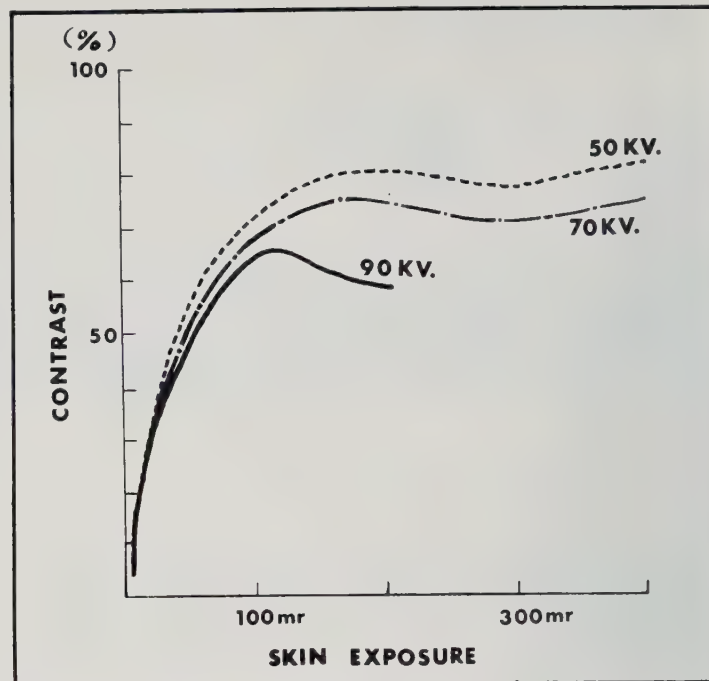


Fig 3 Film contrast and exposure levels at various kilovoltages.

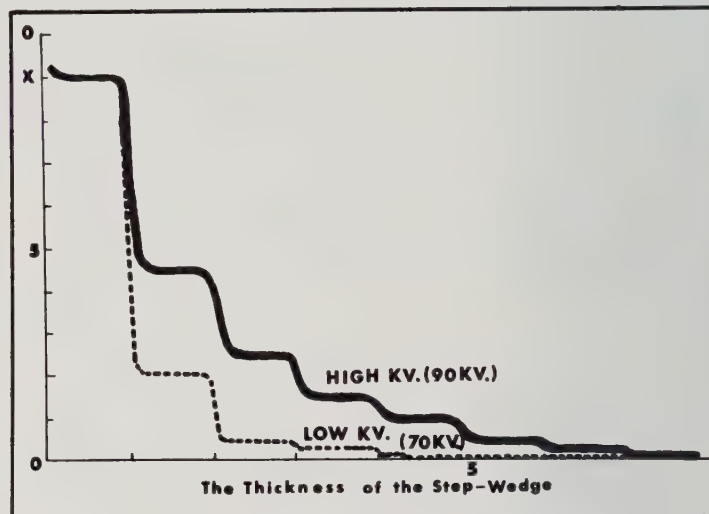


Fig 4 Densitometer scan of step wedge radiograph at 90 kV and 70 kV superimposed on identical background densities at X.

CEZ Mercury fluorescent lamp, which has a green tinge, is used, the direct view tolerance level is comfortable up to 1,000 foot candles.

With a 500 foot candles light a film of density 2.0 appears black and an additional density of 0.2 is not detected. This constitutes the perceptible limit of blackness with this illumination. If, however, the green tinted 1,000 foot candles light is used the limit is raised to a density of 2.3, and by the elimination of glare from the front surface of the film, by turning out the room lights, the limit of density is further raised to 2.5. Densities outside these ranges are not perceptible and information is lost. If, however, excessive film densities occur between 2.0 and 3.5 information may be retrieved by using an intense light source of up to 8,000 foot candles; but what is gained at the black end of the scale, is lost at the other in dazzling brightness as shown in Fig 1.

In a diagnostic film the shades of grey are most readily

perceived and the limits of black and white should be avoided. The useful range of density can be considered to be 0.3 to 2.0 as observed also by Wuehrmann and Manson-Hing.³ The densities of the image of the dental tissues on the films must fall within this useful range. Some latitude is also desirable to accommodate any differences in film density due to variations in processing.

To study contrast, film densities in the region of the crown of the second molar and the region of the interproximal space were measured. These two areas are near the extremes of radiopacity and radiolucency of the structures under consideration in the bitewing film. These areas are also large enough to be easily located and measured.

The first series of bitewing films was exposed with the CGE 100 machine at increasing increments of 10 mR dose at the skin surface.

The lowest exposure at 90 kVp, at which time the film density of the crown reached 0.3, was 40 mR at the skin surface; and the exposure at which the density in the region of the interproximal space reached 2.0 was 240 mR (Fig 2). A film exposed in the middle of this range showed crown and interproximal densities of 0.44 and 1.25 at 110 mR at the skin surface. This exposure leaves a degree of latitude for more radiopaque or more radiolucent structures that may be encountered or for variations in technique. At 70 kVp, the exposure at which the film density was 0.3 in the region of the crown had an exposure of 90 mR at the skin surface. The exposure at which the interproximal space reached a density of 2.0 resulted in an exposure of 260 mR at the skin surface. A film exposed in the middle of this range showed a crown density of 0.44 and an interproximal density of 1.72 giving 190 mR exposure at the skin surface. Thus at 70 kVp the exposure is more critical as there is less latitude between the range of film densities of the image and the range of visual perception.

Film contrast

The contrast of a film is expressed here as the percentage difference in densities between two discrete areas, in this instance, between the density of the molar crown and the interproximal space. When using 90 kVp a peak in contrast of 65 per cent between these two areas appears at 110 mR exposure at the skin surface and with 70 kVp a peak at 74 per cent at 180 mR skin radiation exposure (Fig 3). Both of these peaks occur within the useful exposure range.

The second series of bitewing films was exposed with the S.S. White Spacemaker 90 machine. The effects of peak kilovoltage and filtration on film density, film contrast and skin exposure are shown in Tables 1-3. Table 1 shows that density range, contrast and radiation exposure to the skin increased with a decrease in kilovoltage. Tables 2 and 3 show that diminished filtration increases the density of the film, the density range, contrast and skin exposure.

Discussion

When x-rays are attenuated by different amounts as they pass through body tissues of differing radiolucency they

The effect of kilovoltage on the range of density, contrast and skin radiation. A filtration of 3 mm was used Table 1

Kv	Cycles (15mA)	Density range	Contrast %	Skin radiation mR
90	24	0.76-1.80	58	160 (mR)
80	36	0.70-2.00	65	170
70	45	0.56-1.94	71	180

The effect of filtration on the range of density, contrast and skin radiation Table 2

Kv	Cycles (15 mA)	Filtration in mm aluminum	Density range	Contrast %	Skin radiation mR
90	18	3.5	0.58-1.32	56	110
		3.0	0.55-1.52	64	120
		2.5	0.60-1.48	59	140
85	24	3.5	0.66-1.56	58	125
		3.0	0.64-1.66	61	140
		2.5	0.77-1.80	57	165
80	24	3.5	0.54-1.38	61	100
		3.0	0.56-1.40	61	120
		2.5	0.60-1.76	66	140
75	30	3.5	0.55-1.40	61	110
		3.0	0.55-1.40	61	120
		2.5	0.60-1.76	66	160
70	36	3.5	0.49-1.30	62	120
		3.0	0.54-1.54	65	140
		2.5	0.56-1.82	69	160

The effect of filtration on film density and contrast Table 3

Filtration	Density range	Contrast
(90 Kv, 24 cycles 15 mA)		
3.5 mm	0.66-1.66	60%
3.0	0.76-1.80	58
2.5	0.79-2.16	63
(70 Kv, 36 cycles 15 mA)		
3.5	0.49-1.30	62
3.0	0.54-1.54	65
2.5	0.56-1.82	69

form an image on the radiographic film. This image is visible due to difference of image density, and appears as different shades of grey. The greater the contrast between two shades of grey, the easier the identification of the structures. Below a certain level differences in density are indistinguishable. If only two different image densities were involved the greatest possible contrast between them might be desirable to the point of one being black and the other white. However, a range of densities is involved and density differences must embrace the entire range or information will be lost, not only at the extremes of density but also in the middle region.

Higher kilovoltage potentials produce x-rays of higher penetrating power to form an image of the dental tissues on the film over a range of grey well within the useable limits of black and white. Not only are all densities of this image within the range but differences between densities are more evenly spaced. Lower peak kilovoltage produce x-rays of lower penetrating power which may not penetrate the dental tissues sufficiently to expose the film. If the range extends beyond the limits of white, some of the more radiopaque tissues appear as white areas with little or no detail. In the latter case, the difference in density between two relatively radiolucent areas is greatly increased and here there is great contrast. Thus at low peak kilovoltage there is great contrast at the darker end of the density scale but with loss of contrast for the more radiopaque areas. This effect is clearly seen when a step wedge is radiographed at different peak kilovoltages (Fig 4). This figure was obtained by a scanning densitometer reading of two x-ray images of the same step wedge taken at 90 kVp and 70 kVp. The film density at zero level is identical. The third step of the wedge has a radiopacity approximating that of the crown of the molar tooth.

Fast dental x-ray films . . .

Continued from page 448

would become $3.1 (12.5 \div 4)$ which is about one-sixth of the original or the amount of radiation required for the faster film. The paralleling technique is a more accurate method of radiography. The extension tube method may also be used to advantage with the bisecting angle technique.

4. Increasing the filter thickness. Although this decreases irradiation of the film, it also alters the quality of the beam and is therefore the least desirable method of reducing radiation. A filter to remove unnecessary soft radiation is already in place, and any additional filtration will simply remove more and more of the lower energy radiation, leaving a more energetic beam with consequent loss of image contrast. This would make the quality of 70 kVp x-ray beam more like that produced by the machines operating at 90 kVp.

There are several methods of reducing the amount of radiation for use in connection with faster x-ray film. Diminishing the milliamperage output of the x-ray machine is the simplest of these. On most units the requisite adjustment can be done quite simply by the dentist or a service

Conclusions

Although contrast is necessary to discriminate between densities in a radiograph, the retention of all available information in a wide range of density scale is also important and a compromise must be reached. At 70 kVp the contrast between the crown and the interproximal space is 69 per cent but the contrast between the more radiopaque areas is reduced as is the latitude of exposure. At 90 kVp the contrast between crown and interproximal space is reduced to 60 per cent but density differences between the various shades of grey are more evenly spaced, and thus the total density scale is better utilized; 90 kVp also allows more latitude for variation of exposure, differences in radiopacity of the tissues and variation in processing.

This study shows that wide variations in kilovoltage, filtration and mAs can be used. But the bitewing films taken at 80 kVp 15 mA 30 cycles and 3 mm filtration appeared to be the most suitable compromise under the conditions of processing and viewing used in this study. If, however, other conditions are used, a higher peak kilovoltage may be preferable, with the advantage of a reduced radiation to the patient.

Dr. Oishi and Dr. Parfitt are with the Faculty of Dentistry, University of British Columbia, Vancouver.

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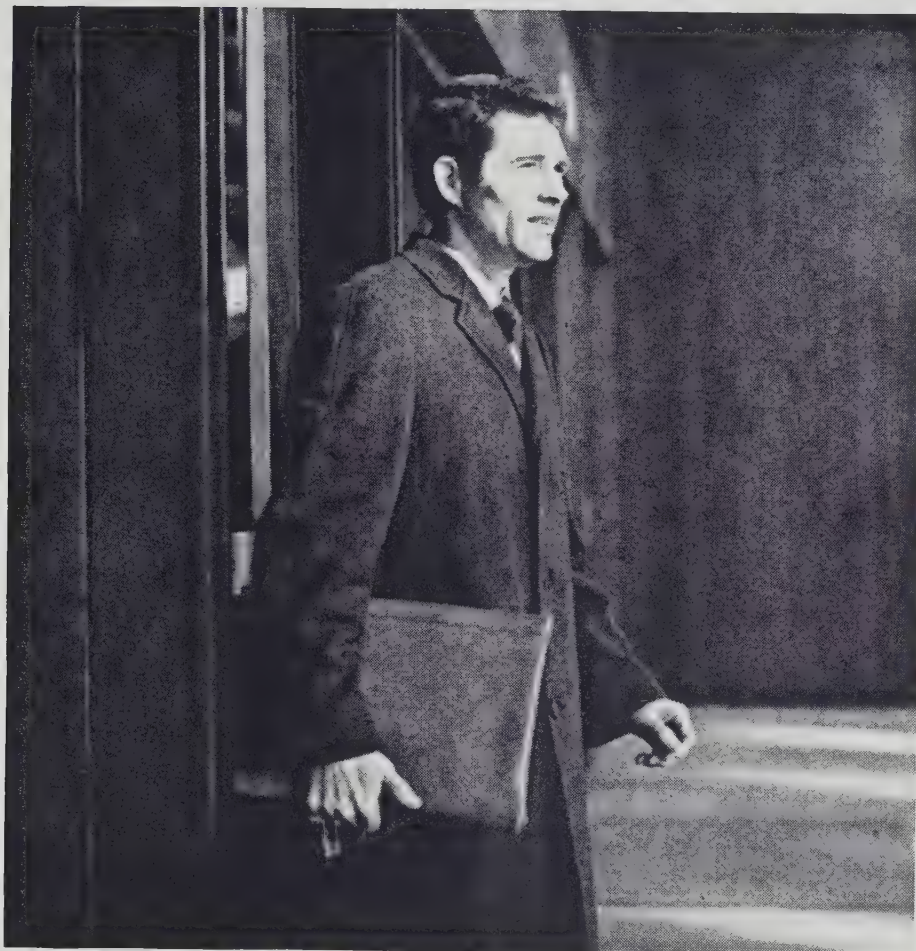
technician. Similar results are achieved when an extension cone is used with the paralleling or bisecting angle technique. Irrespective of the method chosen, high quality radiographs can only be obtained if a standardized approach is used when switching from slow to fast films or when assessing exposure factors of new dental x-ray machines.

Dr. Reid is associate professor and chairman, Division of Oral Radiology, Faculty of Dentistry, University of Western Ontario, London.

Dr. Ruprecht is associate professor, Department of Oral Diagnosis and Radiology, University of Saskatchewan, Saskatoon.

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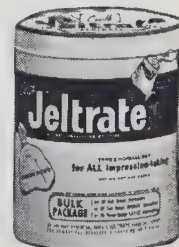
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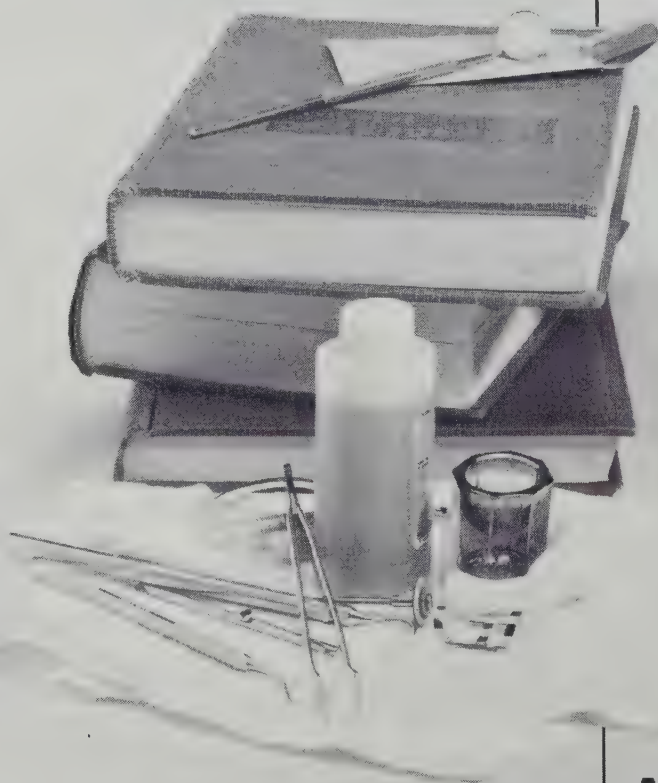
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AUDITORY CANAL HAEMORRHAGE WITH CONTRALATERAL CONDYLAR FRACTURE

T. B. Kilgore, DMD

D. F. Booth, DMD

Boston, Mass.

Harry Hersh, DMD

London, Ont.

Bleeding from the ear following facial trauma is often considered a diagnostic sign of basal skull fracture.¹ However, Rowe and Killey² caution that bleeding from auditory canal injury secondary to condylar fracture can be mistaken for that arising from middle cranial fossa fractures. In fact, only six of 20 such cases reported by Martis and Karakasis³ were actually associated with middle fossa injuries. A case of auditory canal haemorrhage due to fracture of the tympanic portion of the temporal bone is presented with radiographic correlation.

Case report

An 11 year old white female was admitted to the emergency ward of Boston University Medical Centre for evaluation of facial trauma. She complained of pain in the left temporomandibular joint area and bleeding from the right ear.

The patient had fallen from her bicycle the previous evening, sustaining a blow to the symphysis of her mandible causing a laceration of the chin. The laceration was sutured at another hospital and the patient was referred to us for further evaluation and treatment. There was no history of loss of consciousness. The past medical history was unremarkable.

Physical examination on admission to the hospital revealed a fully alert, well developed child in no acute distress. We observed a non-displaced, slightly mobile fracture in the region of the right cuspid. There was tenderness to palpation and limitation of movement over the condylar regions bilaterally. The right auditory canal was filled with clotted blood and had a persistent ooze of fresh blood. The patient's apprehension and discomfort precluded a more

thorough examination of the ear canal at that time. Otoloscopic examination of the left ear was normal. There was no ecchymosis over the mastoid area (Battle's sign) or cranial nerve deficit. The rest of the physical examination and routine laboratory studies were inconclusive.

Facial and skull radiographs revealed a non-displaced fracture of the mandible between the right cuspid and first primary molar. There was a non-displaced fracture of the left condyle but no fracture of the right condyle was visualized. There was no radiographic evidence of a basilar skull fracture. Because fractures on the floor of the middle cranial fossa are often missed on a normal skull series, tomograms of the cranial base were ordered. These demonstrated a fracture through the anterior wall of the external auditory canal with narrowing of the tympanomastoid suture posteriorly, indicating the inferior half of the external auditory canal as a separate fragment with mild displacement. There was a 2 mm separation at the fracture site through the anterior wall of the canal (Fig 1). No fractures of the cranial base were seen.

The following day the patient underwent closed reduction of the mandibular fractures under general anaesthesia with Ivy loops and intermaxillary elastics. Simultaneous microscopic examination of the right auditory canal by the otolaryngology service showed a 5 mm laceration of the anterior aspect of the canal with an obvious fracture through the anterior wall of the external auditory canal. This was managed by repositioning the soft tissue and packing the canal with a polyantibiotic ointment and oxidized cellulose. The patient was discharged on the following day. Four days later the dressing was removed from the auditory canal and fixation was removed after three weeks with full return of mandibular and auditory function.



Fig 1 Lateral tomogram showing fracture of anterior wall of exterior auditory canal.

Discussion

External auditory canal haemorrhage in association with mandibular injury is usually thought to be caused by posterior displacement of the condyle with subsequent fracture of the cartilaginous or bony auditory canal.^{3,4} Killey,⁵ however, feels that the injury can be caused when the condyle is pulled violently away from beneath the skin where it can be felt moving in the normal subject when a finger is placed in the external auditory meatus. The radiograph and operative evidence in our case is suggestive of a fracture along the petrotympanic fissure caused by backward displacement of the condyle (Fig 2).

In any accident case involving bleeding from the ear, basilar skull fracture must be suspected until proven otherwise. Unfortunately, basilar skull fracture is often a presumptive diagnosis as radiographs often are not diagnostic. The diagnosis is often based on the history, unexplained bleeding from the ear, observation of cerebrospinal fluid otorrhoea, ecchymosis over the mastoid area (Battle's sign), and occasionally by testing through a lumbar puncture with introduction of a dye into the cerebrospinal fluid. The less frequent observation is facial paralysis secondary to seventh nerve compression in the facial canal.

In our patient, once the auditory canal haemorrhage was assessed and treated our attention was then directed to treatment of the condylar and mandibular fractures. The patient has been followed regularly over the past nine months without functional problems. She will continue to be watched for abnormalities in mandibular growth.

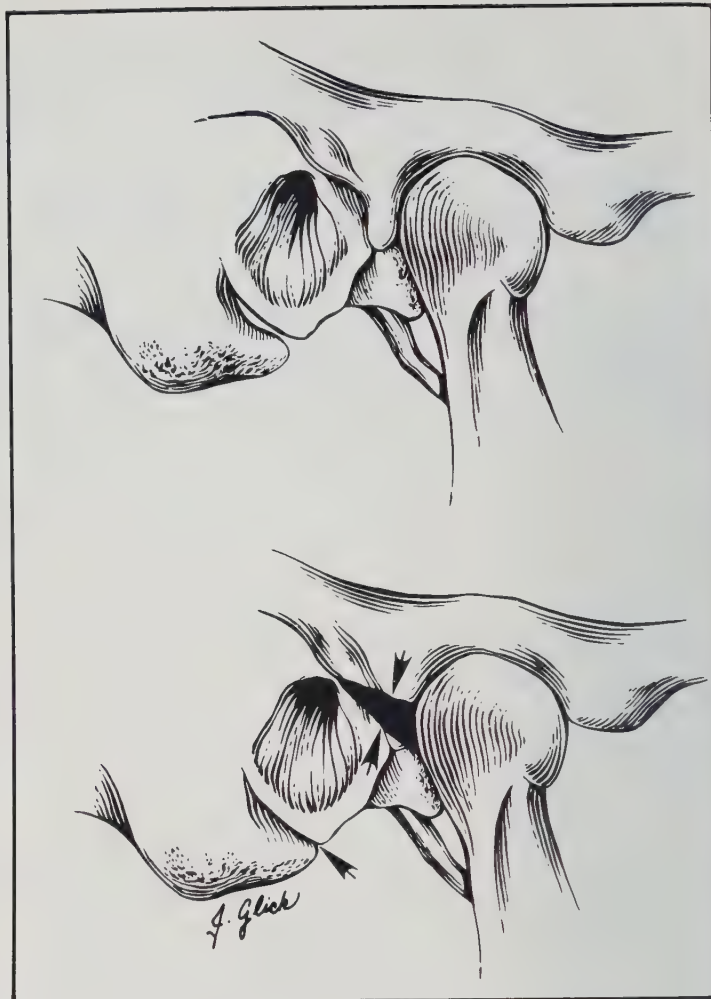


Fig 2 Diagram showing normal anatomy (top) and schematic representation of the injury with widening of petrotympanic fissure and narrowing of tympanomastoid fissure (bottom).

Dr. Kilgore is assistant professor and Dr. Booth is professor and chairman, Department of Oral and Maxillofacial Surgery, Boston University School of Graduate Dentistry, 100 East Newton St., Boston 02118.

Dr. Hersh, formerly chief resident in oral and maxillofacial surgery at Boston University Medical Centre, is now in private practice in oral surgery in London, Ontario.

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A SIMPLIFIED IMMEDIATE MAXILLARY DENTURE

D. J. Signer, DDS
Montreal

This article describes the construction of a temporary maxillary denture which may be inserted in the patient's mouth immediately after extraction of teeth. A typical case is the patient who, because of advanced periodontal disease, neglect, or other causes, faces the prospect of losing remaining maxillary teeth, bridges or partial dentures.

Method

An alginate impression of the complete maxillary arch is obtained. This impression includes any partial denture the patient may be using. The impression must extend adequately to include the palatal and vestibular areas of the mouth. A stone cast is poured and allowed to set in a humidor. The cast is separated from the impression and a second cast is poured immediately. The two casts should accurately reflect the maxillary teeth and related soft tissue areas.

The teeth are ground off from one of the casts, the object being to simulate as closely as possible the patient's mouth as it will appear after surgery. Areas of the cast which are reproductions of flanges and/or palatal extensions of partial dentures are now scraped to a depth equal to the thickness of these denture components. The cast is then coated with a separating material such as Caulk's Al-cote.

Because alginate impression materials distort after a relatively short time, the original impression is discarded and a new alginate impression is made of the unaltered cast. After separation from the cast, the tooth area of the impression is filled to slight excess with a tooth-coloured cold-curing resin such as Myerson's Crown and Bridge Resin. The ground cast, which was coated with separating medium, is placed in the alginate impression and seated home with moderate pressure (Fig 1).

After the tooth resin has set, the cast and the hardened resin teeth are removed from the impression. The united resin teeth are then placed in the correct anatomical position on the trimmed cast. The flash around the resin teeth (Fig 2) help to locate them accurately on the cast. Using the powder and liquid method, pink cold-cure resin is applied to the palatal and vestibular areas of the model (Fig 2). When this resin has set, the resulting "denture" may be removed from the cast, trimmed and polished.

After completion of surgery, a soft lining material like De Trey's Visco-Gel is painted on the tissue-bearing surface of



Fig 1 Cross-section of trimmed cast seated in the second alginate impression and showing fabrication of the resin teeth. A, trimmed coated cast. B, tooth resin flash. C, tooth-coloured resin. D, alginate impression material. E, rim-lock impression tray.

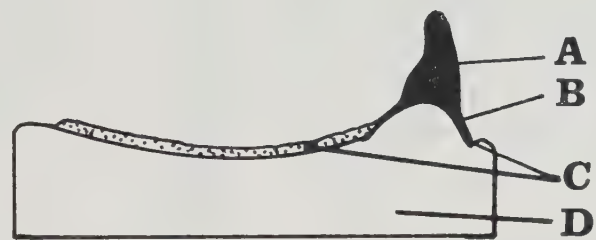


Fig 2 Cross-section of trimmed cast with resin teeth and cold-cure denture resin applied. A, resin teeth. B, tooth resin flash. C, pink denture resin. D, trimmed cast.

the denture. The denture is then inserted in the mouth and the patient is instructed to close with moderate pressure. After a few minutes the denture is removed and excess soft lining material (such as projections into sockets) is trimmed away with a pair of scissors.

Finally, occlusal contacts between the denture and the mandibular teeth are now checked. Minimal, if any, adjustment is necessary because the patient's occlusion is basically unaltered. Though it may be a "malocclusion," the patient is used to it and tolerates it well.

Comments

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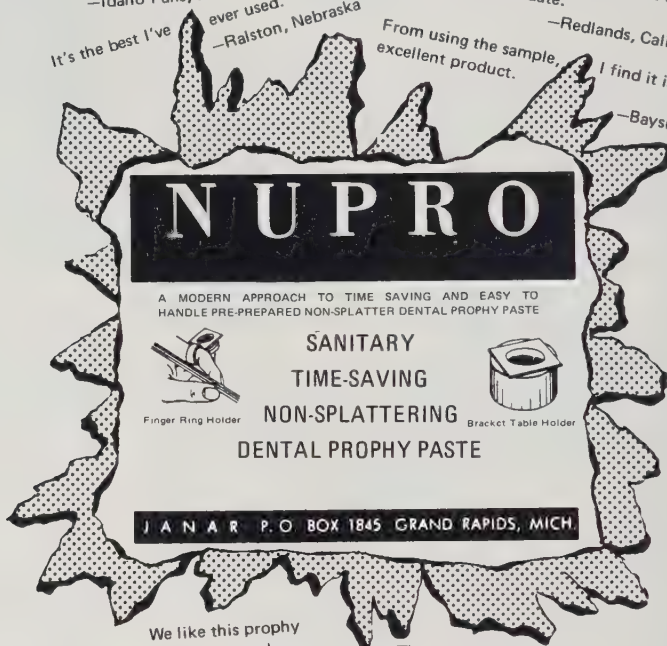
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Letters of application and curricula vitae should be submitted immediately to:

Professor C. Olivieri Munroe
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University of Toronto
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Canada

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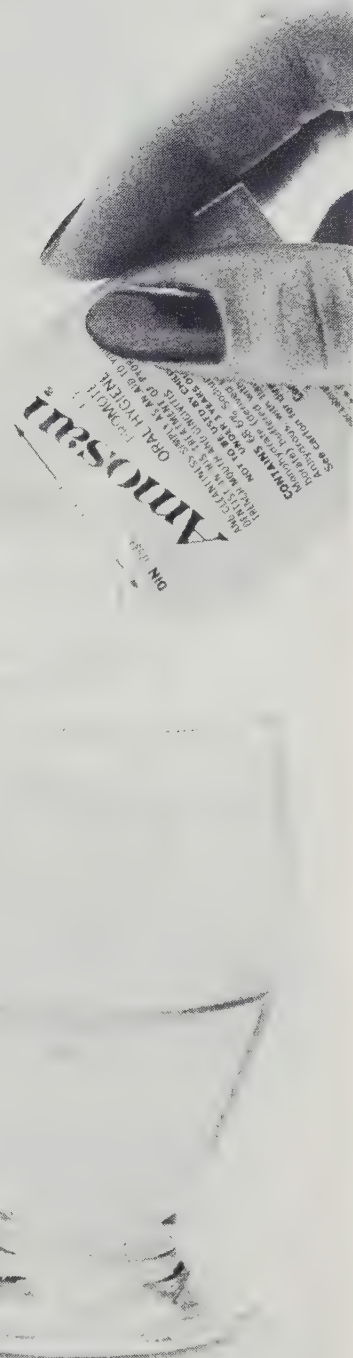
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Application forms and other information is available from :

The Dental Director,
The Royal Dental Hospital of Melbourne,
711 Elizabeth Street,
Melbourne, Victoria, Australia 3000

with whom applications close on Friday, 31st November, 1976.

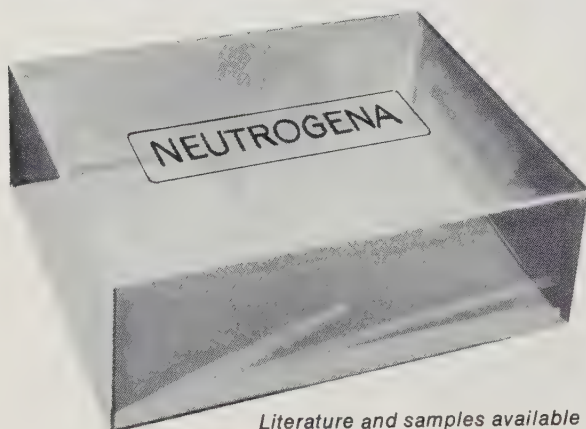
ADVERTISERS' INDEX

Ash Temple	460
Astra Pharmaceuticals (Canada) Ltd.	OBC
Block Drug Company Canada	429, 435, 446
Canadian Pharmaceutical Association	437
L. D. Caulk Company of Canada	453
Colgate-Palmolive Ltd.	441
Cooper Laboratories Ltd.	461
Denco	432
Dentsply International	422, 431, 443
Department of National Defense (Recruiting)	454
Eaton Laboratories	IFC
Feature Finance Inc.	462
Charles E. Frosst & Company	433
Hygiene Manufacturing Company	445
Janar Company Inc.	458
Johnson and Johnson	425
Medi-Dent Service	IBC
Procter and Gamble	421
Professional Pharmaceutical Corporation	462
Whaledent International	427

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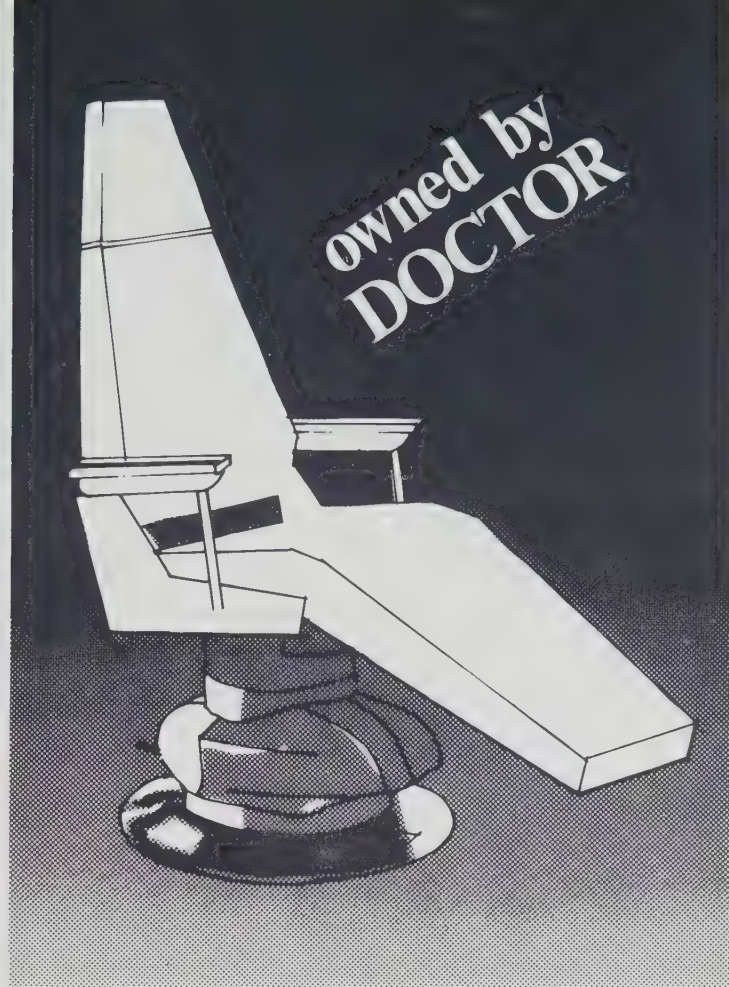
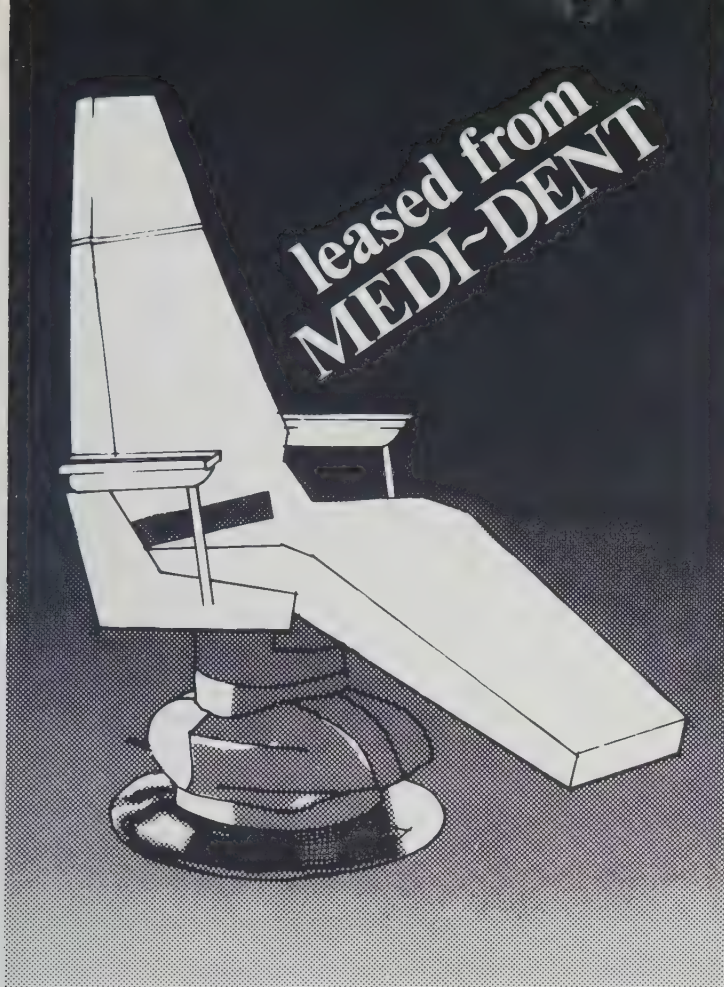
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DENTAL JOURNAL DENTAIRE

Oct 1978/Volume 42/No 10

Canadian Dental Association/Association Dentaire Canadienne



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ISSN 0008-3372

Editorial

La promesse de notre bonne fortune	470
------------------------------------	-----

Special Feature

Le FCED — une main secourable	472
-------------------------------	-----

Regular Features

Announcements	466
Letters to the editor	468
Les actualités dentaires	473
Dentistry in the news	474
Deaths	480

Articles

Predisposing conditions of infective endocarditis — Munro and Lazarus	483
Prevention of infective endocarditis — Munro and Lazarus	490
Carious lesions of the roots of teeth: a review for the general practitioner — Banting and Ellen	496
Periodontal-endodontic lesions and their management — Turner	506

Classified advertising	513
------------------------	-----

Advertisers' index	518
--------------------	-----

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La direction du Journal ne partage pas nécessairement les opinions qu'expriment ses collaborateurs à moins que l'Association Dentaire Canadienne ne les ait adoptées officiellement.

Canadian Meetings

Montreal Dental Club Pre-Convention Seminar, at Montreal. Nov. 13-14, 1976. Miss M. Komarnicka, 4166 St. Catherine St. W., Montreal 215, Que.

Montreal Dental Club Fall Clinic, at Montreal. Nov. 15-17, 1976. Miss M. Komarnicka, 4166 St. Catherine St. W., Montreal 215, Que.

Toronto Academy of Dentistry, 39th Annual Winter Clinic Meeting, Nov. 25, 1976, at the Royal York Hotel, Toronto. Mrs. P. Williams, Executive Secretary, 230 St. George St., Toronto M5R 2N5.

Alpha Omega Fraternity Winter Meeting, Inn on the Park, Toronto, Dec. 8, 1976. Dr. G. Christensen will speak on Advances in Restorative Dentistry. Contact: Alpha Omega Fraternity, 2016 Bathurst St., Toronto, M5P 3L1.

Ontario Dental Association, at Sheraton Centre (formerly Four Seasons Sheraton), Toronto, May 8-11, 1977. Mrs. W.C. Durham, 234 St. George St., Toronto, Ont. M5R 2P2.

Royal College Fellowship Examinations

Part I (Basic Sciences) Examinations, leading to Fellowship in the Royal College of Dentists of Canada will be held on *Monday, June 20, 1977*, in regional centres across Canada.

Applications for these examinations, with the \$100.00 examination fee, must be received at the Royal College by *January 15, 1977*.

Application forms (for the Part I examinations) and further information may be obtained from the Secretary-Registrar-Treasurer, Dr. John E. Speck, Ste. 614, 170 St. George Street, Toronto, Ontario M5R 2M8.

Part II (oral) Examinations will be held, as usual, in Toronto, late in November or early in December.

Les Journées Dentaires du Québec, at Queen Elizabeth Hotel, Montreal, May 16-20, 1977. Dr. R.M. Lang, 5171 Decarie Blvd., Montreal, Que. H3W 3C2.

Congress on Cleft Palate and Related Craniofacial Anomalies, at Royal York Hotel, Toronto. June 5-10, 1977. Deadline for abstracts Sept. 30, 1976. Advance registration closes Dec. 31, 1976. Congress Secretariat, 191 College St., Toronto, Ont. M5T 1P7.

Western Canada Dental Society, at Banff Springs Hotel, Banff, Alberta. July 3-6, 1977. Dr. D. Pedlar, Publicity Chairman, Western Canada Dental Society, 1711 — 4th St. S.W., Ste 303, Calgary, Alta. T2S 1V8.

International Meetings

Seminar on Surgical-Orthodontic Correction of Dento-Facial Deformities, at Albert Einstein College of Medicine, New York, Nov. 4-5, 1976. Director, Postgraduate Dental Program, Albert Einstein College of Medicine, Bronx, New York 10461.

American Academy of Implant Dentistry, at Las Vegas. Nov. 11-13, 1976. American Academy of Implant Dentistry, 469 Washington St., Abington, Mass. 02351, USA.

American Prosthodontic Society, at Las Vegas. November 12-13, 1976. R.B. Underwood, 919 North Michigan Ave., Ste. 2108, Chicago, Ill. 60611, USA.

The Association of American Women Dentists, 55th Annual Meeting, Nov. 14-15, 1976, at Sands Hotel, Las Vegas, Nevada. Hospitality room for all visiting women dentists will be open each day from 9 a.m. till 5 p.m. AAWD Central Office: 17th Floor, 435 North Michigan Avenue, Chicago, Illinois 60611.

American Dental Association, at Las Vegas, Nevada. Nov. 14-18, 1976. Convention Bureau, American Dental Association, 211 East Chicago Ave., Chicago, Ill. 60611, USA.

American Academy of Periodontology, at San Francisco. Nov. 17-20, 1976. Miss M. Holmquist, 211 East Chicago Ave., Ste. 924, Chicago, Ill. 60611, USA.

Greater New York Dental Meeting, 52nd Session, at New York Hilton Hotel, Nov. 27 - Dec. 2, 1976. For complete program contact: Greater New York Dental Meeting, New York Hilton, 1335 Avenue of the Americas, Suite 528, New York, N.Y. 10019.

International Congress of the Association Dentaire Française, at Paris, France. Nov. 30 - Dec. 4, 1976. Dr. J. Charon, Association Dentaire Française, 22 avenue de Villiers, 75017, Paris, France.

American Society for the Advancement of Anesthesia in Dentistry. Congress on Modern Pain Control, at Monte Carlo, Monaco. Dec. 2-7, 1976. Dr. A. Reyes-Guerra. 475 White Plains Rd, Eastchester, NY, USA.

International Congress for Preventive Dentistry and Oral Health, Costa del Sol at the Palacio de Congresos, Torremolinos, Spain. Initial dates set for the Congress, January 15-18, 1977 and March 5-8, 1977. Additional optional dates throughout January, February and March will be available. Sponsored by the American Society for Preventive Dentistry, 400 Shelard Plaza South, Minneapolis, Minnesota 55426.

Miami Winter Meeting, at Miami Beach, Jan. 23-26, 1977. Barbara Sims, 2 SE 13th St., Miami, Florida 33131.

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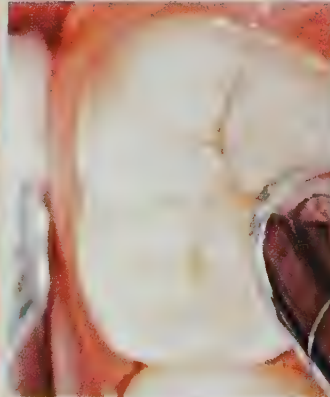
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Succinylcholine-induced apnoea

I read with interest, and also a considerable amount of concern, the article on "Succinylcholine-induced apnoea" by Dr. D. S. Precious in the July, 1976, Journal.

We are not always able to predict bizarre reactions from the administration of medications, such as Succinylcholine, and Dr. Precious and the anaesthetist who administered the agent certainly cannot be faulted on this basis. However, the overall treatment and handling of the case itself, which includes the selection of the anaesthetic, certainly in my mind leaves a lot to be desired.

To subject a normal, healthy five-year-old child for the extraction of three deciduous teeth to a hospital environment and the administration of a hospital anaesthetic is certainly an unquestionable abuse of that patient. Any oral surgeon who has completed an appropriate program in oral surgery, including his hospital residencies and training in general anaesthesia, would not have hesitated in treating this patient in his office with the appropriate ambulatory general anaesthetic. Extracting three deciduous teeth under a general anaesthetic, in an office, by a competent, qualified oral surgeon, would have eliminated the need for the administration of Succinylcholine and the oral endotracheal intubation of the patient.

The trauma that this young patient was subjected to as the direct result of a hospital general anaesthetic and endotracheal intubation is absolutely inexcusable.

Thousands of young patients, such as this five-year-old boy, are treated in dental and oral surgical offices across Canada and the United States every day for the extraction of teeth under ambulatory office general anaesthesia with excellent results.

Statistical figures will bear me out when I suggest to you that the more

involved, the deeper, the longer, and the more traumatic the general anaesthesia becomes, it follows that more complications involving the patient will arise.

The administration of general anaesthetics in offices by competent and qualified oral surgeons and dentists has certainly proven itself in the past to be a most efficient, safe procedure. To go beyond this modality and form of treatment when the situation does not warrant it, is not providing treatment in the patient's best interest.

*Lawrence I. Gaum, DDS
Toronto, Ontario*

American Medical Association's pamphlet on fluoridation

The American Medical Association may feel justified in as far as its "evaluation of available scientific evidence", as developed by its Council on Foods and Nutrition, goes in supporting the use of fluoride. The pamphlet to which your Journal refers (Dentistry in the news, May, 1976) shows the prevailing obsession with public water supplies as the vehicle for distribution. Is it equally justified in pushing the most wasteful way of applying the treatment?

That suggests, without my wishing to be rude, that they should have looked not only to teeth, but beyond their noses to the wider view of effects on the environment. At worst, natural teeth can be replaced by false ones, but the ecological effect of millions of gallons of fluoridated water seeping into the environment is not so easily remedied. Like bread cast upon the waters, it will return threefold, but not with such "desirable" results. Agriculturists, horticulturists, and cattle raisers have been known to demur, but their voices are no more than a whisper at present. More scientific evidence from their side would be useful to any final evaluation.

Considering that 12 years is the age

when the enamel of teeth finally hardens and gives natural resistance to the causes of caries, the ingestion of fluoride intended to help that hardening should then stop. After that, the enforced drinking (one per cent of the supply) by all and sundry of the fluoridated water and the use or wastage of the remaining 99 per cent are impositions which the general public understandably cannot always be expected to stomach.

The World Health Organization, so often quoted as supporting fluoridation, also lists milk as a potential vehicle for it. The Borrow Dental Milk Foundation, unbedevilled by profit or political motives, exists to explain the practicality of the milk method, and encourages pilot schemes and research into this world-wide problem. Particulars can be obtained from its headquarters at Padnell Grange, Padnell Road, Cowplain, Portsmouth, Hants, England.

*Phyllis Deakin,
Waterlooville,
Hants, England.*

Legal requirement for sale of fluoride

In my recent article "Improving your relationship with your pharmacist" (June, 1976) it should be stated that the present legal requirement for the sale of fluorides is as follows:

"A prescription is no longer required for fluoride preparations. Substances containing up to 1 mg fluoride ion per stated daily dose must be sold in a pharmacy. Also, a *preparation*, containing more than one mg fluoride ion per stated daily dose, requires sale by the pharmacist, registry of the sale, and "Poison" labelling. Dentifrices are exempt from these requirements."

*A. A. Brown,
Clinical Pharmacist,
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LA PROMESSE DE NOTRE BONNE FORTUNE

Depuis 1962, le Fonds canadien pour l'éducation dentaire a investi une somme d'au moins trois-quarts de million de dollars dans la profession dentaire au Canada au moyen de bourses de formation d'enseignants, de subventions aux écoles dentaires et de diverses autres formes d'assistance directe à l'éducation et à la recherche dentaires. Une grande partie de cette libéralité était due aux contributions faites par les dentistes. Au cours d'une année récente, par exemple, plus de mille dentistes avaient contribué au Fonds la somme de \$37,000 (dons en déduction des revenus imposables), chiffre impressionnant à premier abord, mais en fait, moins d'un dentiste sur six y avait souscrit.

Les dentistes reconnaissent en général la place privilégiée qu'ils occupent au sein d'une minorité favorisée de la société. Mais un groupe social ne peut survivre et agir à sa guise que si tous ses membres acceptent une part équitable de responsabilité en regard des avantages dont ils profitent.

Il n'y a d'illustration plus frappante de ce fait que le rapport qui existe entre les puissants pouvoirs industriels et les nations en voie de développement du Tiers-Monde. La décolonisation a créé des handicaps critiques à l'égard de ces dernières: économie fondée sur l'exportation de ressources non-renouvelables, faible ou nulle fabrication locale, agriculture à peine suffisante pour subvenir aux besoins, connaissances techniques

minimes. Des difficultés de cet ordre imposent des contradictions internes très graves: déficience agricole causée par la poussée démographique, déficience industrielle causée par l'extériorisation du commerce alors qu'il n'existe aucun marché intérieur, déficience de l'éducation résultant du coût énorme auquel revient l'acquisition de compétences professionnelles et déficience de l'exportation causée par l'instabilité des prix des denrées sur les marchés mondiaux.

Le Canada et un grand nombre de pays occidentaux ont, à leur honneur, agi rapidement et ils ont procuré aux nations sous développées l'assistance technique et économique qui a servi à rétablir l'équilibre, du moins dans quelques uns des pires cas, entre leur économie et celle des continents en voie de développement. Il faut admettre qu'ils ont partiellement agi ainsi par intérêt, réalisant que l'indépendance politique doit aller de pair avec l'indépendance économique, si ces nations qui luttent pour survivre doivent acquérir stabilité, indépendance et ressort. Mais ils ont également agi selon leur conscience — selon la conviction que la richesse et la puissance intellectuelle de la société occidentale devraient servir à transformer ce monde en société dans laquelle tous les êtres humains pourraient vivre dans un esprit de fraternité et de respect d'eux-mêmes.

Intérêt national judicieux et objectif moral vont de pair: en fait ce serait

étrange que les choses soient différentes. Après tout, pour faire preuve de jugement il faut être en mesure d'évaluer à quel point coïncident nos propres intérêts et ceux de nos voisins. En termes plus généraux, il n'existe guère de concours de circonstances plus propice que celui des nations en voie de développement, leur besoin d'expansion et de consommation, et le Canada, tenu à trouver des marchés nouveaux. Dans le contexte de notre propre domaine, il existe un concours de circonstances analogue entre le besoin dont fait preuve la population canadienne d'obtenir des soins dentaires de haute qualité et le désir qu'éprouve notre profession à augmenter le nombre de dentistes et d'auxiliaires, ce qui pourra transformer ce besoin en réalité.

Pour terminer, si ainsi que nous le déclarons bien souvent, notre profession sert d'exemple, tous les dentistes canadiens auront également l'occasion de donner l'exemple et de faire un don généreux au FCED au cours du mois d'octobre — mois du FCED pour 1976, afin que notre propre bonne fortune puisse à son tour retomber sur ceux qui suivent dans nos traces.

F. H. Compton, D.D.S.
Ancien éditeur scientifique
Journal de l'Association
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LE FCED — UNE MAIN SECOURABLE

Marjorie Dimitri, R.D.H.
Editeur/Ancienne présidente
Association canadienne des
hygiénistes dentaires

Les étudiants de la Grèce antique apprenaient peut-être les doctrines que leur enseignait Aristote en se promenant avec lui à longueur de journée, alors qu'il prononçait ses discours péripatétiques; ou encore, installés en groupe à l'ombre d'un portique classique, ils arrivaient à acquérir les concepts d'équanimité qu'enseignaient les philosophes stoïciens. Au Moyen Age, l'étudiant de l'époque de Villon arrivait à subvenir à ses besoins en faisant fonction de scribe public et il poursuivait en même temps ses études tout en donnant, à cœur joie, des leçons. Toutefois, pour l'étudiant de nos jours, une érudition approfondie n'est acquise qu'à un prix considérable.

Heureusement, aujourd'hui, un nombre toujours croissant d'organismes et d'institutions cherchent à trouver des formules pour donner aux étudiants faisant preuve de compétence et de promesse d'avenir les moyens de continuer leurs études. Le Fonds canadien d'éducation dentaire fait partie de ce nombre; depuis sa création en 1962, il a fait des efforts inestimables pour prononcer encouragement et appui financier à tous les aspects de l'éducation et de la recherche dentaires au Canada. Ces dernières années, les administrateurs du FCED ont également témoigné un vif intérêt à l'égard des professions dentaires auxiliaires.

Les rapports entre le domaine de l'hygiène dentaire et le FCED ont été établis en 1969, lorsque l'Association canadienne des hygiénistes dentaires a créé un fonds fiduciaire s'élevant à \$3,500; les revenus provenant de ce

fonds étaient destinés à perpétuité, à l'usage exclusif des hygiénistes dentaires. Peu après, à la suite d'une décision conjointe, des bourses d'études furent offertes aux étudiants d'hygiène dentaire dans toutes les écoles du Canada et 27 bourses de \$200 furent décernées aux meilleurs étudiants de première année; ces "meilleurs" étudiants faisaient preuve non seulement d'excellence scolaire mais ils participaient aussi avec dynamisme aux activités organisées. En 1974, avec le plein accord de l'Exécutif de l'ACHD, il fut décidé d'abandonner, au moins provisoirement, le programme de bourses d'études et de réserver les fonds disponibles à des bourses de formation d'enseignants.

Les administrateurs du FCED sont depuis longtemps convaincus que des enseignants hautement qualifiés constituent le noyau de tout programme éducatif et depuis de nombreuses années, ils offrent des bourses aux dentistes désireux d'embrasser une carrière d'enseignant. Au cours des années, les administrateurs du Fonds ont réalisé et évalué le besoin constant d'éducateurs qualifiés dans le domaine d'hygiène dentaire et depuis 1969, grâce à dix-sept bourses de formation d'enseignants décernés à douze hygiénistes, la somme totale de \$22,400 a été investie dans l'avenir de la profession. Compte tenu de l'augmentation des frais de scolarité, on ne peut douter que les récipiendaires de ces bourses ont dû éprouver une reconnaissance profonde à la réception d'une aide si propice. Les récipiendaires des bourses doivent s'engager à enseigner soit à plein temps, soit à temps

partiel, dans une institution du Canada qui offre un programme universitaire d'éducation professionnelle dans les domaines dentaire ou d'hygiène dentaire. L'engagement minimum dans ce cadre constitue une année de service dans une faculté par année d'appui financier obtenu.

Par ailleurs, le FCED réalise également que les résultats produits par la gamme complète "éducation, octroi de permis et exercice professionnel" des services dentaires auxiliaires, sont de première importance en regard de la qualité de soins dentaires offerts aux patients. En conséquence, en janvier 1974, le FCED a subventionné une Conférence de l'ADC sur les auxiliaires dentaires. Cette assemblée a pour la première fois établi des liens de communication entre les membres des diverses équipes de la santé dentaire au Canada; les résultats issus des discussions approfondies qui ont eu lieu dans divers ateliers ont, depuis lors, été étudiés et développés par les Associations respectives.

Dernièrement, les administrateurs du FCED ont encore démontré l'intérêt qu'ils éprouvaient vis-à-vis de l'éducation en hygiène dentaire en accordant une subvention à l'atelier de l'ACHD pour les Enseignants cliniques en hygiène dentaire, tenu à Winnipeg en juin 1976. Cet atelier a procuré une occasion unique à ceux qui s'intéressaient à l'éducation en hygiène dentaire de participer à des discussions traitant de leurs préoccupations communes. L'occasion de s'assembler officiellement à l'échelle nationale et de partager ainsi connais-

Continué

“LIENS PROFESSIONNELS”: THEME DE LA CAMPAGNE D'ADHESION A L'ADC POUR LES ETUDIANTS

L'Association dentaire canadienne lancera sa campagne d'adhésion 1976 pour les étudiants dans toutes les facultés dentaires du Canada, au cours des mois de septembre et d'octobre. Thème de la campagne pour cette année: “Liens professionnels”.

Au cours de ces dernières années, le nombre d'étudiants dentaires membres de l'ADC n'a cessé d'augmenter et en 1975, il a battu tous les records.

Les exigences d'admissibilité sont très simples: pour l'unique cotisation annuelle de \$5.00, tout étudiant inscrit à une faculté dentaire canadienne, ou encore tout dentiste diplômé qui s'est inscrit directement à la suite de sa formation universitaire à une année d'études avancées dans une université ou un hôpital accrédités, est admissible à devenir membre de l'ADC et à bénéficier de tous les avantages concomitants. La situation diffère en Ontario car pour la cotisation annuelle de

\$10.00, les étudiants peuvent obtenir l'adhésion conjointe à l'ADC et à l'ODA, ce qui permet à tout étudiant inscrit à une faculté dentaire de l'Ontario de bénéficier des avantages qui résultent de l'adhésion à ces deux organismes.

L'adhésion à l'ADC offre aux étudiants les avantages suivants:

- l'obtention du Journal mensuel de l'ADC;
- l'utilisation du programme audio cassette de l'ADC traitant des progrès récents et des dernières techniques dentaires au tarif spécial pour étudiants;
- l'accès aux brochures et publications de l'ADC;
- la participation au congrès annuel de l'ADC;
- la participation au programme clinique de table pour étudiants de l'ADC;

- la désignation d'un étudiant délégué à l'ADC; à son tour, ce délégué participera à la Conférence canadienne annuelle des étudiants dentaires au cours de laquelle des délégués seront nommés pour assister à l'assemblée annuelle du bureau des gouverneurs de l'ADC, à la réunion annuelle du Conseil d'éducation de l'ADC et à la réunion annuelle du Conseil national des examinateurs dentaires;
- l'adhésion à l'Association internationale des étudiants dentaires, la participation aux programmes d'échange d'étudiants et au Congrès international annuel;
- la familiarisation avec les organismes provinciaux et nationaux de la profession dentaire canadienne;
- l'avantage de pouvoir souscrire aux régimes dentaires d'assurance et d'investissement nationaux et provinciaux.

Le FCED...

sances et information a été d'une valeur inestimable. Le Comité sur l'éducation de l'ACHD envisage actuellement l'organisation d'un autre atelier destiné aux conseillers en éducation d'hygiène dentaire et une subvention à cet égard a déjà été approuvée par le FCED.

Le Fonds canadien pour l'éducation dentaire témoigne un intérêt considérable à tous les aspects d'éducation et de

recherche dans les domaines dentaire et d'assistance dentaire; l'ACHD lui est profondément reconnaissante de l'encouragement et de l'appui financier qu'il lui a apportés, car il s'agit là des deux facteurs inestimables en regard du développement et des réalisations de la profession au Canada. Grâce à sa contribution toujours croissante, on peut espérer que le Fonds pourra pro-

mouvoir divers programmes qui nous aideront à réaliser notre but commun, soit l'amélioration de la santé dentaire pour tous les Canadiens. Les administrateurs du FCED réalisent qu'investir en collectivité nationale constitue le meilleur placement possible et nous espérons que vous, également, ferez preuve d'un même intérêt au cours du mois d'octobre, le mois du FCED.



In August, 1976, Dr. H. L. Mussells, president of the Canadian Dental Association, welcomed employees to the new CDA headquarters building in Ottawa. From left to right, are: Lloyd A. Stevenson, Acting Executive Director; Dr. G. Daoust, Librarian; Dr. Mussells, and Rod MacLeod, Comptroller and Office Manager. The new building, comprising 24,000 square feet of office space, is situated next to the Canadian Medical Association headquarters and is surrounded by beautiful scenic countryside.

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L'ASSOCIATION DENTAIRE CANADIENNE
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CDA President and some members of the staff in the lobby of the Ottawa headquarters. Left to right: Anna Spencer, Journal Manager; Rod MacLeod, Comptroller and Office Manager; Cathy Horvath, Secretary to the Executive Director; Lloyd Stevenson, Acting Executive Director; Dr. H. L. Mussells, President; Dr. George Daoust, Librarian; Emma Lee Boulter, Accounting Secretary; Marie Cosgrave, Classified Advertising Manager; Margaret Hideg, Executive Council Secretary; and Linda Teteruck, Office of Student Affairs and Administrator of the Dental Aptitude Test Program.





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HOW FEE GUIDES ARE VIEWED UNDER THE COMBINES INVESTIGATION ACT

In the August issue of the Journal we published a news story dealing with the amendments to Canada's Combines Investigation Act, specifically Section 32 of the Act. This Section, which prohibits agreements to lessen competition unduly, became applicable to the service industries on July 1, 1976.

The story detailed the correspondence between Lloyd Stevenson, Acting Executive Director of the Canadian Dental Association, and the Director of Investigation and Research of the Combines Investigation Act regarding the Act and its application to the dental profession. It also carried, in full, the draft letter prepared by CDA's legal advisers and sent, by Mr. Stevenson, to each provincial corporate member with the suggestion that they, in turn, circulate it to their members to ensure that every dentist across Canada realizes that a fee guide is only a schedule of advisory guidelines and adherence to it is not in any sense obligatory.

In late July, Mr. Stevenson received further correspondence from the Director of Investigation and Research of the Act which included a copy of a letter which had been sent by the Director to

Dr. John Rooney, Executive Director and Registrar of the New Brunswick Dental Society, advising him of the interpretation of the Act with regard to the subject of fee guides. The letter stated:

"The Combines Investigation Act does not provide any authority whereby I may make binding rulings concerning the application of the Act. I am prepared, however, to indicate the circumstances under which I would be obliged to undertake an inquiry because I have reason to believe that a violation of the Act had occurred or was about to occur.

"The circulation of a fee guide would not in itself give me reason to initiate an inquiry. Whether or not there was undue lessening of competition would depend in part on the circumstances in which the fee guide came into being and results of its circulation. Let us say, for example, that the members of a profession in an area concluded that their fees were inappropriately low and that a new fee guide should be issued to remedy the situation. A committee was then appointed to recommend a higher fee schedule and its recommendations were

presented to a meeting of the association. After discussion of the proposals the members authorized the society's executive to issue the proposed guide with or without modifications. If they did this in the expectation that the membership would substantially follow the new guide and this in fact was the result, a court might very well conclude that the whole process was an arrangement to lessen competition unduly within the meaning of the Act. If, however, the membership was not in the habit of adhering to the guide and it was not expected that fees would be substantially changed through the arrangement to issue a new schedule, it is unlikely that undue agreement could be shown to exist.

"I regret that it is impossible to be more precise, but I hope the above will be of assistance to you."

Commenting on the letter, Mr. Stevenson stated: "It seems we must be very cautious concerning a meeting regarding the approval of a fee guide in order not to place the profession in a position where a court would find that an arrangement was made to lessen competition unduly."

THE CANADIAN DENTAL ASSOCIATION L'ASSOCIATION DENTAIRE CANADIENNE 1815 Alta Vista Drive Ottawa, Ontario K1G 3Y6

Our library Services will be temporarily discontinued, due to the Association's move to our new headquarters in Ottawa.

In the meantime, please return all overdue books to the above address.

The reopening date will be announced shortly.

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Le service de la bibliothèque de l'Association Dentaire Canadienne est temporairement discontinué, en raison du transfert du siège social à Ottawa.

On vous demande de bien vouloir retourner les volumes en retard, à l'adresse ci-haut mentionnée.

La date de la réouverture sera annoncée prochainement.

Merci.

Vancouver Dental Society announces new officers

The Vancouver and District Dental Society recently elected the following members to its executive for the 1976-77 term of office: Mal Panar, president; Art Shippam, president-elect; Bob Clarke, secretary; Bruce Bessie, treasurer; and, Dave Emery and Dave Hughes, directors.

Essex County dentists elect new executive

The following members of Ontario's Essex County Dental Society were recently elected to serve on the organization's executive body: D. P. Anderson, president; W. E. Russell, vice-president; B. E. Walls, treasurer; and, M. P. Piercell, secretary.

Dalhousie appoints Dean of Dentistry

Dr. Ian C. Bennett has been appointed Dean of the Faculty of Dentistry at Dalhousie University. He was previously Dean of Dentistry at the College of Medicine and Dentistry of New Jersey.

Born in England, Dr. Bennett holds dental degrees from Liverpool University, the University of Toronto and the University of Washington in Seattle. He was previously associated with Dalhousie from 1963 to 1965 as associate professor and head of the division of pedodontics. He later served as assistant professor of pedodontics at the University of Kentucky and joined the New Jersey College in 1968 as associate dean.

CFDE receives a special gift

Stanley O. Tebbutt, vice-chairman of the Canadian Fund for Dental Education, recently expressed the deep appreciation of CFDE for the Medi-Dent Company's special gift to cover the cost of office furniture and equipment for the Fund's new headquarters at 44 Eglinton Avenue West, Toronto. This special gift, according to Mr. Tebbutt, is in addition to the company's annual generous support of the Fund's programs since 1963.

CFDE moved to its new location on July 12, 1976, shortly before the Canadian Dental Association moved to its new headquarters in Ottawa.

Commenting on the move, Mr. Tebbutt stated: "After careful consideration of all factors involved, the Trustees decided that the Fund could best accomplish its objectives of providing help for dental education and research by keeping its headquarters in Toronto. The Fund is most grateful to CDA for providing space and other valuable services at nominal cost for many years in its Toronto building."

DRUG CRISIS TREATMENT MANUAL ISSUED TO CANADIAN HOSPITALS

The Department of National Health and Welfare is providing Canadian hospitals with an emergency treatment manual for drug crises, according to a recent announcement by Health and Welfare Minister Marc Lalonde.

The manual, entitled "Drug Crisis Treatment", contains accepted medical procedures for drug-induced reactions. In an emergency situation there is much that can be done, even if the specific drug or chemical involved is unknown. Supportive therapy or treatment of symptoms, such as difficulty in breathing, should begin immediately. If the drug or chemical involved is known or suspected, a quick reference section provides further details of treatment, including any known antidote or drug which will counteract the effects of the original substance.

Prepared in conjunction with the Canadian Medical Association, the

manual has been produced in three-ring loose-leaf binder form. Because new techniques and drugs are being developed constantly in the field of medicine, this format was decided upon to allow for yearly revisions of the contents. The C.M.A. has agreed to assist in an annual revision of the material.

It is hoped that the loose-leaf format will encourage hospital staff to add pages of their own containing information which may be pertinent to local industrial or agricultural conditions and chemical agents associated with the work place.

The publication is also being provided free of charge to all Canadian medical and nursing schools. Mr. Lalonde hopes it will be useful to students and professors alike, particularly in the study of clinical pharmacology. A limited supply of the manuals are being made available at cost to interested private practitioners.

Practice Management Seminar

A Practice Management Seminar will be held Saturday and Sunday, November 20-21, 1976, at the Hotel Beausejour in Moncton, New Brunswick. Topics to be discussed during the two-day seminar are as follows:

Dental Office Organization: Dr. Alexander E. MacLeod, Associate Professor and Lecturer in Practice Management, Dalhousie Dental School.
Assessing Today's Dental Equipment: Melvin Klug, Consultant Engineer, Toronto.

Managing the Difficult Patient: Dr. Michael D. Murphy, Psychiatrist, Boston, Mass.

Financial Management: Harvey Meretsky, Partner, Laventhol and Horwath, Chartered Accountants, Canada and the U.S.A.

To facilitate maximum exchange of information, participants will be assigned to groups for half a day's intensive discussion with each speaker. Cost of the seminar: \$125.00

For further information, contact: Medical Arts Dental Group, 5880 Spring Garden Road, Halifax, Nova Scotia. Telephone: (902) 425-7600.

FREE DENTAL TREATMENT POPULAR AT OLYMPICS

The free dental clinic, set up in the basement of the Olympic Village in Montreal, turned out to be one of the most popular medical services offered to Olympic athletes.

Dr. Michel Jahjah headed up the team of 25 Montreal-area dentists who worked voluntarily in three-day shifts

during the games. While many countries included medical doctors in their delegations, few brought along a dentist.

There were a number of dental emergencies which Dr. Jahjah and his team were called upon to cope with. One Asian soccer player had the front of his

mouth kicked in. The teeth were broken and had to be drilled clean. Another athlete came in at 11:30 p.m. with his front teeth pushed back. The team of Montreal dentists worked on him until 2:30 a.m. moving his teeth forward again and anchoring them to other teeth that had not moved. In addition to these emergencies, scores of other athletes had dental work performed while in Montreal.

In addition to the free clinic on the Olympic site, the dentists of Montreal looked after visitors to the city. The Montreal Dental Society, realizing that it would be difficult for many visitors to the games to get dental treatment, organized a special service by recruiting 35 dentists who would be available to provide treatment to visitors during the period of the Olympics.

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DEATHS

Dawson, Delmar Goodwin, 52. Neepawa, Manitoba. University of Toronto, 1953. 13-7-76. Survived by Doris (wife); Drew (son); Mrs. Deborah Tibbett (daughter).

Fraser, William Norman, 61. Creston, B.C. University of Alberta, 1938. 24-6-76. Survived by wife and family.

Johnston, Joseph H., 65. St. Thomas, Ont. University of Toronto, 1936. 14-3-76. Survived by Eleanor (wife); Charles (son); Margaret Johnston and Mrs. Jo Anne Jewell (daughters).

McLeod, Cecil Donald, 77. Winnipeg, Manitoba. University of Toronto, 1923. 27-7-76. Survived by his wife; Beverley (daughter).

Parker, Ralph T., 63. North Sydney, Nova Scotia. McGill University, 1937. 7-76. Survived by Anne, Jane and Susan (daughters).

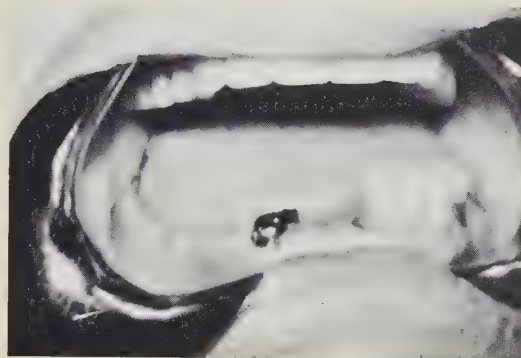
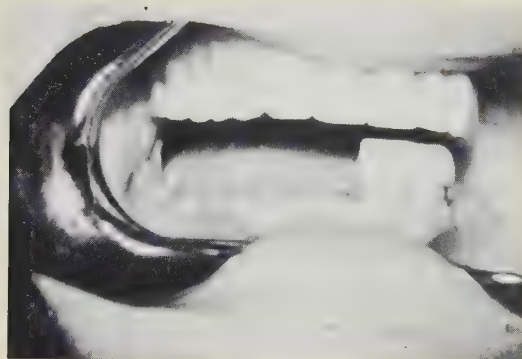
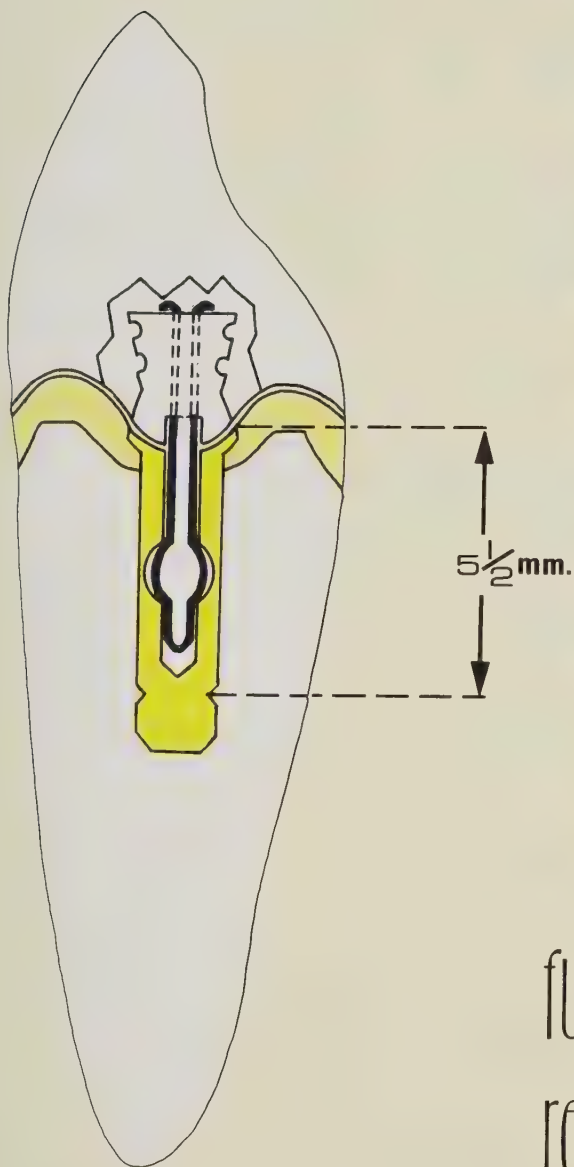
Turner, John Whitlock, 81. Niagara Falls, Ont. Royal College of Dental Surgeons of Ontario, 1916. 26-7-76. Survived by Mrs. Bernard Franck (daughter); Drs. Rod, Jay and Tim (sons).

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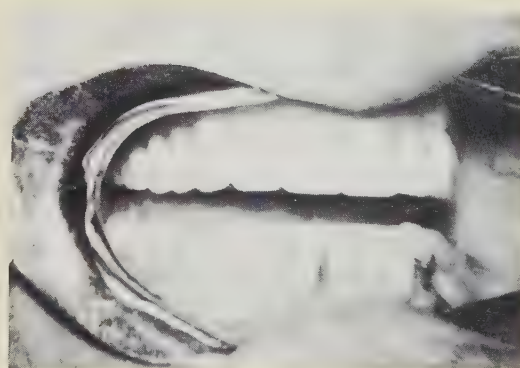
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TORONTO STUDY FINDS FLUORIDATION CUTS CHILDREN'S CAVITIES IN HALF

Fluoridation of Metro Toronto's water supplies has cut tooth decay in young children in half, according to a public health study.

The study, conducted by Dr. D. W. Lewis, Chairman of the Community Dentistry Department at the University of Toronto, reveals that the younger a child was when Metro Toronto began putting fluoride in its water in 1963, the higher his chances of not having cavities.

In a letter accompanying the study, Dr. George Moss, Toronto's Medical Officer of Health, states: "No other preventive dental health measure has

ever given such well-documented positive results." He also said the study has "fully vindicated" the controversial decision to adopt fluoridation in 1963. This move was taken after a long series of legal fights, legislative disputes, and a referendum that favored fluoridation by a slim margin.

Dr. Lewis, author of the study, said that fluoridation costs less than 12 cents a year per person and greatly reduces the cost of dental care.

His statistics show tooth decay in deciduous teeth was reduced by 50 per cent in children aged five, seven and nine. For permanent teeth, the decay was reduced by 44 per cent. The per-

centage of five-year-old children free of cavities has doubled since 1963.

The benefits of fluoridation were also found in children over 13, who were born before the program began. It was found that 13-year olds had an average of three teeth attacked by decay in 1974, as compared to the 1964 average of well over five.

Dr. Lewis discounted the possibility of factors other than fluoridation of Toronto's water supplies having brought about these results. He noted that studies in other communities without fluoride do not show a similar decrease in tooth decay.

ADA ISSUES STATEMENT REGARDING SALE OF DENTURES BY LABORATORIES TO CONSUMERS

The American Dental Association has issued the following statement in response to the announcement that the Federal Trade Commission will investigate state regulations which prohibit dental laboratories from selling complete dentures directly to consumers and require that dentures be provided only through dentists:

"The patient who seeks prosthetic work from a dental technician is placing himself in the hands of a person who, no matter how skilled mechanically, has not been trained to treat the mouth, has no background that would qualify him to work with patients and has no training in health sciences that would enable him to administer health care. The dental technician may be very able in constructing excellent prosthetic appliances, but he has nothing in his qualifications that would equip him to provide the health care service necessary for the various stages of denture treatment from initial examination through post-insertion care.

"The overriding importance of the biologic aspect of denture care has long been realized by the dental profession and has resulted in the delegation of the mechanical extra-oral phase of denture fabrication to the qualified technician. To consider complete dental care for the edentulous patient as only denture fabrication would be to ignore the anatomic, physiologic and psychologic variables experienced in prosthetic service which frequently can be among the most complex problems encountered in dentistry.

"Those who propose to allow the dental laboratory technician to work directly with the patient would have the public — and the legislators — believe that the denture is merely an innocuous health aid. They ignore the potential and actual development of damage to living oral tissues that ill-fitting dentures can bring about.

"When ill-fitting dentures are worn for a long time, serious problems can arise. These may include eating prob-

lems, difficulty in speaking and more rapid destruction of bone needed for denture support. Constant irritation, if continued over a long period, may contribute to the development of oral cancer.

"Only the dentist has the training, knowledge and skills to provide the necessary care that meets the total oral health needs of the patient beginning in the pre-natal period and throughout life. There can be no arguments that can justify endangering a patient by removing him from that care.

"It seems incongruous that the FTC would investigate whether trade and commerce are unlawfully restrained by state laws prohibiting other than licensed dentists from providing dentures to members of the public. This matter has already been addressed by the Federal Denture Act (Trainor Law) of 1948 which makes it illegal to place in interstate commerce or to mail dentures made from impressions taken by someone who is not a dentist."

PREDISPOSING CONDITIONS OF INFECTIVE ENDOCARDITIS

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Although dental procedures have been known to be closely linked with the development of infective endocarditis for some time, it is questionable whether the dental profession has shown an adequate concern regarding this problem. Support for this contention is substantiated by a survey conducted by the Department of Oral Medicine and Pathology of the Faculty of Dentistry, University of Toronto, over the past two years. The need for a comprehensive review of the problem of infective endocarditis and a re-emphasis of the dentist's role in its prevention is indicated at this time and is discussed in this paper.

If the dentist is to fulfil adequately his responsibility in the prevention of bacterial or infective endocarditis, he must be fully aware of those conditions which predispose a patient to such a risk. These conditions may be grouped as follows:

1. Rheumatic heart disease or history of rheumatic fever
2. Congenital heart defects
2. History of cardiac surgery
4. Syphilitic aortitis (rare)

The most common of these is the first and, therefore, it will be reviewed in greatest detail.

1. Rheumatic heart disease and rheumatic fever

Rheumatic heart disease is the most serious consequence of rheumatic fever. A clear understanding of the latter is therefore necessary before examination of the former.

Rheumatic fever is a systemic, nonsuppurative inflammatory disease, often recurrent, which affects joints, muscles, tendons, heart valves, subcutaneous tissues and blood vessels. Its only important consequence is the damage it causes to the heart. Rheumatic fever may occur at any age, but 90 per cent of patients suffer their first attack between the ages of 5 and 15.

Etiology and pathogenesis of rheumatic fever

The development of rheumatic fever is closely related to infection with Lancefield group A beta-haemolytic strepto-

cocci. Most cases present with a history of a streptococcal infection (pharyngitis or scarlet fever) one to four weeks previously. Subsequent streptococcal infections often lead to recurrent attacks of rheumatic fever and, therefore, recurrences can be avoided if streptococcal infections can be prevented as with prophylactic antibiotics.

Although the etiological role of the streptococcus is clearly implicated in rheumatic fever, the lesions in this disease are sterile and do not result from direct bacterial invasion. It would appear that the pathogenesis of rheumatic fever can be explained on an immunological basis. Studies have shown that certain antibodies elicited by streptococci are cross reactive with myocardial and skeletal muscle tissue as well as the smooth muscle of the endocardium and vessel walls. The characteristic lesion of rheumatic fever is the Aschoff body, a microscopic focus of fibrinoid and necrosis surrounded by a chronic inflammatory cellular infiltrate.

Clinical features of rheumatic fever

Familiarity with the clinical manifestations of rheumatic fever is of prime importance for every dental practitioner. Many patients who have been afflicted by this disease may not know it by name and may only recount some of the symptoms during the history taking. By knowing the symptoms and signs of rheumatic fever, the dentist may discover the possibility of such a history. This may be confirmed by consultation with the patient's physician.

The disease often begins suddenly with pain, swelling and stiffness in one or more joints as well as fever, sweating and tachycardia. It may, however, develop insidiously with fatigue, malaise and loss of weight. A brief discussion of the five major manifestations follows:

a. *Carditis* — All layers of the cardium may be involved, but only the endocarditis is of lasting significance as the myocarditis and pericarditis usually resolve without leaving permanent damage. The endocarditis consists of the formation of minute platelet thrombi (sterile vegetations) on the

free edges of the valves damaged by the foci of the inflammation. Organization and fibrosis during the healing stage of these lesions result in distortion of the valves. In severe cases or after repeated attacks this distortion may lead to a state of valvular stenosis or valvular incompetence. The mitral valve is often affected, with mitral stenosis being the most common valvular lesion of rheumatic fever. The aortic valve may be affected as well. Aside from the possibility of congestive heart failure as a result of chronic valvular damage, the most significant aspect of the endocarditis is that the damaged endocardium may serve as an area of anachoresis during certain types of bacteremias, thus predisposing to infective endocarditis.

b. *Polyarthritis* — The larger joints are most commonly affected, namely, the knees, ankles, wrists, elbows and shoulders. They may become hot, red, swollen and tender. The arthritis is migratory as it “flits” from one joint to another. Recovery is complete with no permanent joint dysfunction.

c. *Chorea* — This neurological manifestation usually has a late, insidious onset. The severity ranges from minimal involuntary movements to violent continual activity involving the limbs, tongue and facial muscles. The patient may be totally incapacitated and may require protection from self-injury. This condition is totally reversible.

d. *Erythema marginatum* — During the acute phase of the disease, reddish patches appear mainly on the trunk. As they enlarge they form irregular crescent shapes which fuse together. The lesions, which tend to disappear and reappear over a short period of time, have slightly elevated margins.

e. *Subcutaneous nodules* — Rheumatic nodules are more common in cases with serious cardiac involvement. They are firm, painless nodules that occur over bony prominences of joints or attached to tendons of the extremities, the spine and the back of the head. The skin is freely movable over them. These nodules appear far less frequently than they did twenty years ago.

Table 1 illustrates a guide in the diagnosis of rheumatic fever. The presence of two major manifestations, or one major and two minor manifestations indicates a high probability of the presence of rheumatic fever if supported by evidence of a preceding streptococcal infection.

2. Congenital heart defects

Congenital cardiovascular anomalies may be divided into a cyanotic group and an acyanotic group.

a. Cyanotic group

With right to left shunt:

— Tetralogy of Fallot (includes pulmonary stenosis and ventricular septal defect) (Blue babies)

b. Acyanotic group

i) With left to right shunt:

— Persistent ductus arteriosus

Clinical and laboratory manifestations of acute rheumatic fever. (Adapted from the recommendations of the American Heart Association. Circulation 32:664, 1964)

Table 1

Major manifestations	Minor manifestations
1. Carditis	1. Clinical
2. Polyarthritis	a. Previous rheumatic fever or rheumatic heart disease
3. Chorea	b. Arthralgia
4. Erythema marginatum	c. Fever
5. Subcutaneous nodules	2. Laboratory
	a. Acute phase reactions, erythrocyte sedimentation rate, C-reactive protein, leukocytosis
	b. Prolonged P-R interval
	PLUS
	Supporting evidence of preceding streptococcal infection (increased ASO or other streptococcal antibodies, positive throat culture for Group A Streptococcus, recent scarlet fever).

- Atrial septal defect
- Ventricular septal defect
- ii) Without shunt:
 - Coarctation of the aorta
 - Pulmonary stenosis
 - Congenital aortic stenosis

The most common congenital lesions associated with infective endocarditis are patent ductus arteriosus, small ventricular septal defects, coarctation of the aorta, pulmonary stenosis and aortic stenosis. Infective endocarditis rarely develops in association with atrial septal defects or large ventricular septal defects.

3. Cardiac surgery

Surgery for replacement of diseased heart valves by prosthetic valves has greatly increased in recent years. Both stenotic and regurgitant malfunctions of the mitral or aortic valves have been corrected with excellent clinical and haemodynamic results. Nevertheless, since the prosthetic valves are foreign bodies, they result in local foreign body reactions which may serve as sites for infection during transient bacteremias. With recent improvements in these valvular prostheses there have been dramatic reductions in the operative and late postoperative mortality rates. The likelihood of treating such patients in the dental office is, therefore, rising and the dentist must recognize their need for adequate prophylaxis.

4. Syphilitic aortitis

The tertiary stage of syphilis, a disease showing a marked resurgence in recent years, has a predilection for the cardiovascular system. Obliterative endarteritis of the vasa



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vasorum of the aorta gives rise to syphilitic aortitis. Loss of elastic support, due to destruction of the tunica media, often leads to aneurysmal dilation of the aorta and the aortic valve ring. Secondary athero-sclerotic involvement of the damaged areas is almost invariable and usually begins right at the base of the aortic valve. On rare occasions, patients with syphilitic aortitis have developed infective endocarditis at these sites. Today, with better control and treatment of syphilis in its early stages, the tertiary stage is fortunately seldom seen.

Infective endocarditis

This disease occurs when a previously damaged endocardium becomes infected with micro-organisms which have entered the circulation from some source which is not necessarily dental. The previous damage may have been so slight that its existence was unknown. Endocarditis is often classified into acute and subacute forms depending on the virulence of the infecting organism. If the invading organism does not respond to antibiotics, the acute or malignant form may be fatal within a few days. The more common subacute form, involving organisms of low virulence, runs a prolonged course. Many cases present with features of both forms making such a classification difficult.

Etiology and pathogenesis of infective endocarditis

The most common predisposing lesions are rheumatic heart disease and congenital cardiac malformations. Also of importance are sites of cardiac surgery or prosthetic valves. These areas of irregular, damaged endocardium cause a local slowing of the bloodstream. During a bacteremia, this allows organisms to settle out on the affected areas. The resultant inflammatory reaction causes the deposition of platelets, fibrin and other blood elements on the roughened endocardium forming vegetations. These vegetations are soft, friable masses of the causative organisms enmeshed in clotted blood. Emboli may break away from the vegetation and produce distant effects in other organs of the body.

The organism most commonly implicated in the etiological bacteremia of endocarditis is the *Streptococcus viridans*. Appropriate antibiotic therapy at the time of primary infection has virtually eliminated *Pneumococcus*, *Gonococcus*, and *Meningococcus* as important causes of infective endocarditis. However, the incidence of *Staphylococcal* and *Enterococcal* (*Streptococcus faecalis*) endocarditis is rising. Several varieties of fungi are also being isolated as causes of endocarditis including *Candida albicans*, *Aspergillus fumigatus*, *Histoplasma capsulatum*, and *Cryptococcus neoformans*.

Clinical features of infective endocarditis

Low fever and malaise usually accompany the insidious onset of this disease. Clinically it is seen as manifestations of the septicemia, the endocarditis, and the embolic effects.

1. Septicemic features

- a. *Pyrexia* — A low, irregular fever is associated with sweating and malaise.
- b. *Anemia* — The skin is pale and may have a "café-au-lait" tint in advanced cases.
- c. *Spleen* — The spleen is enlarged.
- d. *Blood culture* — The blood will be positive for the infecting organisms, although several samples may be required before such a result is obtained.

2. Endocarditis

Progressive destruction of the endocardium leads to changing murmurs. The damaged valves, the anemia, and the toxemia may lead to cardiac failure, the most common cause of death in these patients. As in other chronic heart and respiratory diseases, finger clubbing is often seen.

3. Embolic effects

- a. *Skin* — Minute emboli blocking superficial vessels and damaging their walls can cause petechial haemorrhages into the skin and conjunctivae and painful splinter haemorrhages under the nails. Pink tender swellings called Osler's nodes may occur in the fingertips.
- b. *Kidneys* — Multiple small infarcts with a resultant "flea-bitten" appearance cause red cells to appear in the urine. Massive haematuria may result from large infarcts.
- c. *Spleen* — Pain and tenderness result from infarction of the spleen.
- d. *Cerebral embolism* — This may cause hemiplegia.
- e. *Retina* — Immediate blindness in the affected eye results from blockage of a retinal artery.
- f. *Mesenteric arteries* — Occasionally an embolism may lodge here, causing paralysis and obstruction of the gut.

The seriousness of this disease and, therefore, the dentist's responsibility in doing his part to prevent it, cannot be over-emphasized. With the advent of antibiotics the mortality rate has decreased somewhat, but the incidence is still high. This is not satisfactory as many patients who survive have sustained such severe cardiac damage and renal impairment that their lives are greatly compromised.

Relationship of dental procedures to the development of infective endocarditis

It is now generally accepted that dental procedures performed without appropriate precautions on patients with predisposing endocardial lesions, may lead to the development of infective endocarditis. This concept is based on the results of numerous studies which have substantiated the following three criteria.

1. The major organism responsible for the disease is found in the oral cavity.
2. The disease often develops shortly after dental procedures are completed.

Type of infection in 803 published cases of bacterial endocarditis

Table 2

Author	No. of episodes of endocarditis	Infecting organism			
		Strep. viridans	Other strep.	Staph.	Neg. culture
Cates and Christie (1951) ⁶	442	354	40	6	34
Vogler, Dorney and Bridges (1962) ⁷	148	41	23	45	19
Dormer (1958) ⁸	82	47	17	6	22
Barritt and Gillespie (1960) ⁹	72	58	2	6	5
Hobson and Juel-Jensen (1956) ¹⁰	59	25	5	7	18
Total	803	525 (65%)	87 (11%)	70 (9%)	98 (12%)

Proportion of cases of bacterial endocarditis giving a history of recent dental treatment

Table 3

Author	No. of episodes of endocarditis	No. due to Strep. viridans	Recent dentistry
Cates and Christie (1951) ⁶	215	187	23
Dormer (1958) ⁸	82	47	11
Barritt and Gillespie (1960) ⁹	72	58	10
Hobson and Juel-Jensen (1956) ¹⁰	59	25	7
Total	428	317 (74%)	51 (12%)

3. Transient bacteremias occur frequently after dental procedures.

A brief review of the literature in these three areas follows.

Criterion 1

Streptococcus viridans, which is native to the oral cavity, was isolated from the blood of infective endocarditis patients as far back as the early 1900's in studies by Horder,¹ Libman,² and Kreidler.³ Later on, Niven and White⁴ stressed the importance of *Streptococci viridans* with their findings on 113 cultures of streptococci isolated from 100 cases of bacterial endocarditis. Wilkinson⁵ tabulated the results of investigations into the type of infection in bacterial endocarditis. His compilations revealed that in some 65 per cent of 803 published cases the infecting organism was *Streptococcus viridans* (Table 2).

Criterion 2

Many investigators of infective endocarditis patients have noted that a significant number had a recent history of tooth extraction. Referring to the findings of 250 cases, Kelson and White¹¹ wrote, "The most common predisposing cause of the illness, if we exclude the indefinite condition called gripe, was some dental procedure, especially extraction." Approximately 25 per cent of the cases studied gave a history of tooth extraction. Analyzing 165 patients, Seabury¹² concluded that "an apparently direct relationship to exodontia was found in 13.3 per cent of this series."

In his survey of more recently published series, Wilkinson⁵ found that 12 per cent of 428 patients with infective endocarditis presented shortly after dental treatment without antibiotic coverage. In most cases the infecting organism was *Streptococcus viridans* (Table 3). Other possi-

Distribution of 50 patients having subacute bacterial endocarditis and a history of rheumatic fever or heart disease, according to predisposing cause, and percentage of mortality

Table 4

Predisposing procedure or condition	% patients having procedure or condition	Mortality (%)
Dental		
Extraction	22	
Scaling	2	4
Root canal manipulation	2	
Upper respiratory infection	32	8
Abortion	6	0
Urethral instrumentation		
Rectal surgery	10	4
Biliary surgery		
Cardiac surgery		
Pneumonia	2	0
Unknown	24	4

ble causes of the bacteremia which led to the endocarditis include upper respiratory tract, genito-urinary and obstetric procedures.

In a study of 50 patients at University Hospital, Ann Arbor, Michigan, Millard and Tupper¹³ found that 22 per cent of the patients gave a history of a recent dental extraction without preventive antibiotics prior to or following the dental operation. Also of significance was the high incidence of upper respiratory infection as the predisposing cause of the endocarditis (Table 4). The authors suggest that the large proportion of patients lacking a known predisposing factor may have developed the illness by means of self-induced bacteremias through eating, toothbrushing, gum chewing, and neglected minor infections.

Positive blood cultures

Table 5

Group	No. of cases	Aerobic	Anaerobic	Total	Percent
Exodontia	275	60	37	97	35.2
Brushing	305	51	70	121	24.2
Prophylaxis	350	55	75	140	40.0
Chewing hard candy	225	22	17	39	17.4
Chewing gum	200	0	0	0	
Total				397	29.4

Group II. Incidence of bacteremia in periodontic manipulation

Table 7

Procedure	No. of cases	Positive cultures			
		Immediately after manipulation		Ten minutes after manipulation	
		No.	Per cent	No.	Per cent
Gingivectomy	12	10	83.3	3	25.0
Deep scaling	15	8	53.3	2	13.3
Light scaling	20	6	30.0	1	5.0

Group I. Incidence of bacteremia in exodontic manipulation

Table 6

Procedure	No. of cases	Positive cultures			
		Immediately after extraction		Ten minutes after extraction	
		No.	Per cent	No.	Per cent
Multiple extraction	93	79	84.9	41	44.0
Heavy trauma	61	57	93.4	30	49.2
Mild trauma	32	22	68.7	11	34.3
Single extraction	33	17	51.5	8	24.2

Group III. Incidence of bacteremia in endodontic manipulation

Table 8

Procedure	No. of cases	Positive cultures			
		Immediately after manipulation		Ten minutes after manipulation	
		No.	Per cent	No.	Per cent
Within root canal	50	0	0.0	0	0.0
Beyond root canal	48	15	31.2	0	0.0
Total	98	15	15.3	0	0.0

As dental extraction is such a common procedure, the various results given here do not necessarily imply a causal relationship. To reach a logical conclusion one must consider our third criterion, the occurrence of transient bacteremias following irritation of periodontal tissues.

Criterion 3

Studying 559 cases, Robinson et al¹⁴ detected bacteremia in 39 per cent of the cases immediately following extraction of teeth. The bacteremia appeared to persist for at least five minutes in a large number of cases. Bacteremia was far more common (73 per cent) in those patients who had several extractions in one session. The development of bacteremia did not appear to be related to the age of patients, the presence of dental infection, the type of anaesthetic employed, or the amount of operative trauma. As patients positive at the first extraction showed no significant tendency to be positive at subsequent extractions, the authors concluded that there was no individual predisposition to bacteremia.

A large study involving 1,350 subjects was conducted by Cobe¹⁵ to determine the role of trauma in the production of transitory bacteremias. The results showed routine prophylaxis as well as exodontia produced a significant number of bacteremias (Table 5).

One of the most important investigations to determine the

incidence of bacteremia following certain clinical procedures using highly sensitive techniques, was that of Bender et al.¹⁶ The patients were divided into three groups. Group I had single extractions. These results were compared with those of a previous study of multiple extraction cases. Group II had periodontal procedures including gingivectomy and deep scaling in one quadrant of the mouth. Group III had endodontic treatment. In approximately half of this group, instrumentation was confined to the root canal itself while in the other half instrumentation was done beyond the apex. The results are summarized in Tables 6, 7 and 8.

It is evident from all three groups that as the trauma of manipulation increased, the incidence of bacteremia increased. Multiple extractions produced more bacteremias than single extractions. Since the smaller the number of organisms and the shorter the time they circulate in the bloodstream, the less likelihood of endocardial complications, the authors concluded that extraction of a single tooth at a time is a safer procedure.

Of the periodontal procedures, gingivectomy resulted in the largest number of bacteremias, suggesting that electro-surgery may be a more appropriate treatment for patients at risk. As endodontic treatment confined to the root canal did not result in any bacteremias, these patients should have endodontic therapy rather than extraction whenever possible.

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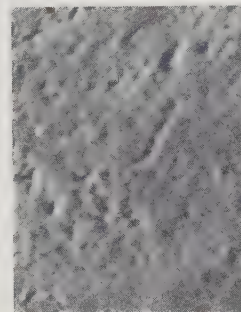
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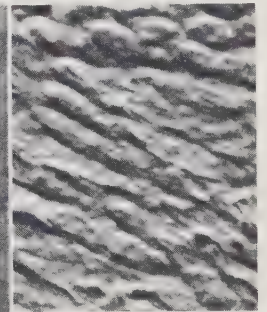
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PREVENTION OF INFECTIVE ENDOCARDITIS

Chemoprophylaxis for dental procedures: Rationale

One cannot prevent the occurrence of a bacteremia during many dental procedures such as extractions. Therefore, the aim of prophylaxis is to destroy those micro-organisms which do enter the circulation before they can colonize a heart valve. Administration of bactericidal agent, as opposed to bacteriostatic, is favoured. Chemotherapy should begin at a time which will allow an adequate blood level at the time of the dental procedure. This is usually one or two hours before the procedure, depending on the antibiotic employed, and not one or two days prior as often thought. The danger of early administration of penicillin was well demonstrated by Garrod and Waterworth¹⁷ who showed that such a practice leads to elimination of penicillin-sensitive streptococci in the mouth and proliferation of the remaining resistant strains. As a result, the patient is more vulnerable at the time of operation than he would have been had no chemotherapy been instituted. Coverage should be continued for two days after the dental procedure, or longer in the case of delayed healing, in accordance with the recommendations of the American Heart Association.

Indication for chemoprophylaxis

One must consider which patients are at risk of developing infective endocarditis and which dental procedures may produce a bacteremia. Drucker and Jolly¹⁸ amended the patient selection criteria specified by the American Heart Association and the National Heart Foundation as follows:

- a. Patients with rheumatic or congenital heart disease
- b. Patients with degenerative condition of the aortic valve
- c. Patients with prosthetic replacement of a heart valve

Prophylaxis should be instituted for oral surgery, periodontal treatment or any other dental procedure which may draw blood. Nevertheless, it should be remembered that the mere rocking of an infected tooth can produce a bacteremia, as shown by Elliott¹⁹ and therefore, in highly susceptible patients, the dentist may choose to expand the range of indications for prophylaxis.

Antibiotics of choice

In dealing with microflora of the oral cavity, penicillin is the antibiotic of choice for most patients. This drug is

bactericidal and is virtually non-toxic. Side effects are rare and only minimal such as mild diarrhoea or mild pruritis. The only contraindications for the use of penicillin is for patients who have a known or suspected allergy to the drug, and for those patients who receive regular daily or monthly doses of penicillin for prophylaxis of streptococcal infections or recurrent rheumatic fever. This latter group will likely harbour penicillin-resistant streptococci.

Ideally, penicillin should be administered by the intramuscular route to ensure a peak blood level at the time of the dental procedure. The American Heart Association²⁰ recommended the following IM administration in 1965: 600,000 units of procaine penicillin G and 600,000 units of crystalline penicillin G IM one hour prior to procedure and 600,000 units procaine penicillin G IM once daily for the two days following the procedure.

In 1972, the American Heart Association²¹ made a similar recommendation but substituted 200,000 units crystalline penicillin G for the former 600,000 units. The Department of Oral Medicine and Pathology of the Faculty of Dentistry, University of Toronto, favours the following procedures in order to achieve an optimum blood level of penicillin at the time of the dental operation and an appropriate level thereafter:

For hospital in-patients — 600,000 units procaine penicillin G and 260,000 units crystalline penicillin G IM one hour prior to the procedure and once daily for two days thereafter.

For other patients — 600,000 units procaine penicillin G and 260,000 units crystalline penicillin G IM one hour prior to the procedure followed by 300 mg (approximately 500,000 units) penicillin V orally every six hours for the remainder of that day and for two days thereafter.

Penicillin V is favoured over penicillin G for the oral route as the absorption of penicillin G is unreliable due to gastric acid destruction.

Many dentists are reluctant to administer the initial dose of penicillin via the IM route due to the possibility of an allergic response which, on rare occasions, may have serious manifestations. Although not ideal, the following is quite adequate: 600 mg (approximately 1,000,000 units) penicillin V orally one hour prior to procedure followed by 300 mg

orally every six hours for the remainder of that day and for two days thereafter.

For patients who are allergic to penicillin or are receiving regular daily or monthly doses of penicillin, the alternative of choice is erythromycin. It has a slightly greater affinity for streptococci but a greater tendency to side effects such as nausea, gastrointestinal upset, diarrhoea, and skin rash. It can be given by the IM route, but as this is painful, the oral route is usually preferred. The following doses are recommended:

Adults — 500 mg erythromycin orally two hours before the procedure followed by 250 mg orally every six hours for the remainder of that day and for two days thereafter.

Small children — 20 mg/kg orally two hours before the procedure followed by 10 mg/kg orally every six hours for the remainder of that day and for two days thereafter.

In rare cases where patients are allergic to both penicillin and erythromycin the recommended alternative is clindamycin 300 mg orally one hour before the procedure, followed by 150 mg every six hours for the remainder of that day and for two days thereafter. Side effects include gastrointestinal upset, diarrhoea and loose stools. Colitis has developed in some patients who have received clindamycin but no cases have been reported in patients taking the drug for only three or four days. If any symptoms of colitis do develop within two months of the administration of the drug, the patient should inform the physician.

In addition to the antibiotic coverage, in cases involving a surgical procedure, the site should be cleansed and an antiseptic such as iodine one per cent should be applied to the area.

Patients with prosthetic cardiac valves

These patients are at a greater risk of developing infective endocarditis as a result of a transient bacteremia than are other patients at risk. Nevertheless, penicillin administered by the IM route is still the drug of choice during dental procedures. As important as the dental treatment that these patients receive after replacement of a cardiac valve is the dental treatment that they receive preceding the cardiac surgery. As Bottomley et al²² pointed out, as part of the preoperative patient preparation, the dentition and supporting tissues should be brought to a healthy and easily maintainable state to preclude a future source of bacteremia. The essence of this aspect of overall patient management is such that, where possible, the cardiac surgery should be postponed until the dental conditions predisposing to bacteremia have been corrected. Full mouth extraction should only be done when time does not permit elimination of multiple sources of a possible bacteremia, or where other factors suggest a return to a poor dental state.

The antibiotic schedule described for postoperative dental treatment is recommended for the preoperative dental preparation as well. An interval of at least seven days should be allowed between the termination of dental treatment and the commencement of cardiac surgery. This is to counter the

possibility of producing antibiotic resistant organisms during the dental treatment which, if present in significant numbers at the time of surgery, could cause complications.

The question of edentulism

To prevent recurrence of infective endocarditis, it has been suggested by some authors that total clearance be performed after the first attack of this disease. In a study of 25 patients who had infective endocarditis due to *Streptococcus viridans*, Hobson and Juel-Jensen¹⁰ found recurrences of the disease over a ten-year period only in five patients, all of whom had retained some teeth. Beeley,²³ in a follow-up study of 13 of these patients over another ten-year period, again found recurrences only in those who retained some teeth. Nevertheless, cases of endocarditis due to *Streptococcus viridans* in edentulous patients have been reported by Cameron,²⁴ Massaro and Katz,²⁵ and Davies.²⁶ In cases reported by Massaro and Katz, there was evidence of oral ulceration due to dentures, indicating the possible source of a *Streptococcus viridans* bacteremia.

Since it appears that total dental clearance does not necessarily prevent the recurrence of *Streptococcus viridans* endocarditis, we do not believe that this procedure should be routine after one attack of infective endocarditis. Each case should be judged individually on the basis of extensive clinical and radiographic examination. If the patient is well motivated to maintain excellent oral hygiene and has few carious or periodontal lesions, then retention of those teeth with a good prognosis is recommended. However, if a patient having suffered an attack, presents with excessive oral debris, multiple caries, and generalized poor periodontal condition, total dental clearance would certainly be the treatment of choice.

Are patients receiving adequate protection?

This is by far the most essential question raised by this paper. Having explained the problems of patients with valvular heart disease and their need for protection during various operative procedures, we must now consider whether members of the dental profession are providing this protection. An inquiry by McGowan and Tuohy²⁷ was prompted by the fact that over a ten-year period in Great Britain there was no drop in mortality from infective endocarditis despite the availability of modern antibiotics as pointed out by Wilkinson.⁵ The significant results of this study were as follows:

1. Of 113 patients at risk 76 per cent had a cardiac lesion of rheumatic origin.
2. The number of surgical procedures carried out on patients at risk without antibiotic cover amounted to 77 per cent.
3. Inquiry as to the presence of a cardiac lesion was made by the dental surgeon (general practitioner) in 16 per cent of the cases; by the dental surgeon (hospital) in 20 per cent of the cases. No inquiry was made in 64 per cent of the cases.
4. Warnings of the need for special precautions during

certain dental procedures were given by a doctor (general practitioner) in 11 per cent of the cases; by a doctor (hospital) in 8 per cent of the cases. No warning was given in 81 per cent of the cases.

A similar study has been carried out by the Department of Oral Medicine and Pathology at the Faculty of Dentistry, University of Toronto. The survey involved 179 patients who were thought to be at risk due to a history of rheumatic fever, rheumatic heart disease or a congenital cardiac anomaly. Of the 179 patients at risk, 64 per cent presented with a cardiac lesion of rheumatic origin. It was found that 90 per cent of these patients had had dental extractions or surgery on previous occasions and 55 per cent had had periodontal scaling or curettage. Despite this, a very large number of patients had not been warned of the necessity of antibiotic cover as shown in Table 9.

The results of both studies are distressing as they clearly demonstrate poor history taking and/or ignorance of the risks involved. A high percentage of patients who are at risk of developing a disease with very serious consequences are being treated without adequate protection. This is totally unjustified considering the little time it takes to determine if a patient is at risk and to administer appropriate prophylactic measures. It is the physician's responsibility to ensure that his patient is aware of his medical condition and the need for antibiotic coverage during certain dental procedures. The dentist, on the other hand, must be prepared to elicit this information by taking a careful history and consulting with the physician if necessary. He should then manage his patient accordingly, providing the safest treatment possible. It is plainly evident from the above studies that such as not been the case in many instances in the past. With greater emphasis of this problem in dental faculties and in the literature, hopefully there will be positive changes in the future.

Suggested guidelines for prevention of infective endocarditis

The following guidelines are meant to serve as a useful reference for the dental practitioner. They enumerate the more salient points presented in the preceding pages.

1. Prior to any dental treatment a careful history taking should be conducted with specific questions aimed at eliciting any history of rheumatic fever and its associated symptoms, congenital heart defects, cardiac surgery and presence of prosthetic valves, or a degenerative condition of the aortic valve. When a patient's medical status is not clear, consultation with the patient's physician is mandatory.
2. Dental extraction should be avoided when possible in healthy mouths. Root canal therapy within the confines of the canal is the treatment of choice.
3. Single extractions are favoured over multiple extractions, unless contraindications are overwhelming.
4. A light scaling of a few teeth per appointment is preferable to a heavy scaling. Electrosurgery is preferable to gingivectomy.
5. Local anaesthesia is preferred over general anaesthesia.

Patients warned of the necessity of antibiotic cover before dental treatment

Table 9

	No.	Percent
By medical practitioner	34	19
By dentist (general practitioner)	35	20
By dentist (hospital)	10	6
Never warned	111	62

6. Prophylactic antibiotic should be administered for any dental procedure which may draw blood or involve rocking movement of an infected tooth. The drugs of choice are penicillin and erythromycin. The following antibiotic regimens are recommended:

For hospital in-patients

600,000 units procaine penicillin G and 260,000 units crystalline penicillin G IM one hour before procedure and once daily for two days following the procedure.

For other patients

Ideal: 600,000 units procaine penicillin G and 260,000 units crystalline penicillin G IM one hour before procedure followed by 300 mg penicillin V orally q6h for remainder of that day and for two days thereafter.

Good alternative: 600 mg penicillin V orally one hour before procedure followed by 300 mg orally q6h for remainder of that day and for two days thereafter.

For patients allergic to penicillin or on regular daily or monthly doses of penicillin

Adults: 500 mg erythromycin orally two hours before procedure followed by 250 mg orally q6h for remainder of that day and for two days thereafter.

Small children: 20 mg/kg orally two hours before procedure followed by 10 mg/kg orally every six hours for remainder of that day and for two days thereafter.

For patients allergic to both penicillin and erythromycin

300 mg clindamycin orally one hour before procedure followed by 150 mg orally q6h for remainder of that day and for two days thereafter.

7. In cases involving a surgical procedure, the site should be cleansed and an antiseptic such as iodine one per cent should be applied to the area.
8. It is most important that these patients have regular dental appointments and that the necessity and techniques of oral hygiene be continually reinforced. By maintaining excellent oral hygiene, possible sources of self-induced bacteremias will be eliminated, periodontal disease and caries will be controlled, and thus the probability of dental extractions will be reduced.

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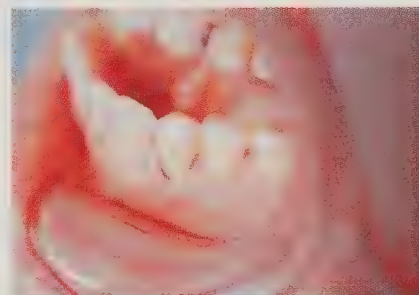
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Summary

Results of a recent survey of 179 patients thought to have predisposing conditions of infective endocarditis, have demonstrated that many dentists are failing to provide these patients with the protection they need. The predisposing conditions of this disease, the features of infective endocarditis itself, and the link between the disease and dental procedures have been reviewed with the hope that this trend will be discontinued. Recommendations for prevention of infective endocarditis have been presented and are summarized for reference purposes in the set of guidelines concluding this paper.

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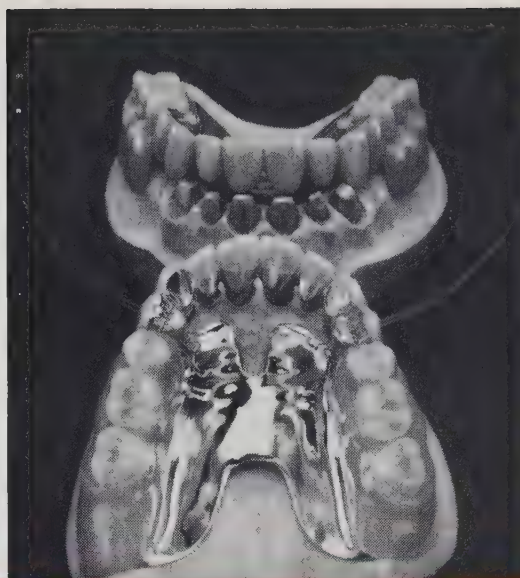
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CARIOUS LESIONS ON THE ROOTS OF TEETH: A REVIEW FOR THE GENERAL PRACTITIONER

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London, Ont.

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Toronto

Although dental caries has generally been considered a disease of childhood or early adulthood, dentists who treat older patients with natural teeth are likely to encounter the problem of dental caries with increasing frequency. The lesions, however, will be found mainly on the roots of the teeth rather than on the crowns. Until recently, root surface caries generated very little interest from the dental profession because these lesions were rarely encountered clinically. The purpose of this paper is to review current information about root surface caries and focus more attention to a problem that may assume greater significance in future.

Occurrence

Root surface caries is not uncommon. Almost half of the subjects examined in two recent studies^{1,2} had one or more carious lesions on the roots of their remaining teeth (Table 1). In both studies, the prevalence of root surface caries increased with advancing age. By age 50-59 years, almost 60 per cent of the patients examined had root surface lesions (Fig 1).

Since the proportion of totally edentulous adults is less now than it was 10 years ago,^{3,4} more teeth and their roots are potentially at risk and vulnerable to caries (Table 2). The number of persons reaching the sixth decade of life is also increasing. Root surface caries, therefore, will almost certainly become a more eminent problem among older patients.

This problem is by no means a recent phenomenon. Many investigators have made reference to carious lesions occurring on the roots of teeth of ancient populations.⁵⁻¹³ These investigators examined skulls and mandibles from anthropological excavations and, although dental caries was a minor problem overall, most of the lesions which had developed were on root surfaces. A similar relationship between frequency and type of caries was found in primitive New Guineans during this decade.¹⁴ In these primitive people, the prevalence of root surface caries also increased with advancing age.

Root surface caries appears to be site-specific. The lesions are almost always confined to the area of the cemento-enamel junction. Root surface lesions in ancient populations predominated on the proximal surfaces of the roots. Clinical investigations in contemporary populations suggest that root surface caries occurs most often on the buccal and lingual surfaces of the roots.^{2,15} In contrast, two investigations which examined extracted teeth of contemporary North Americans found surface caries most frequently on the proximal surfaces.^{16,17}

Associated aetiological factors

As in the case of enamel caries, the aetiology of root surface caries is not entirely understood. Acid production from dietary carbohydrates by cariogenic microorganisms is suspected as the major mechanism in the root surface caries process, although the relative importance of the carbohydrate source and the specific types of microorganisms involved probably differ from those implicated in enamel caries.

Diet — The relationship between carbohydrates in the diet and root surface caries is difficult to evaluate. The Vipeholm Dental Caries Study¹⁸ showed that increases in both enamel and cemental caries incidence coincided with increased daily intake of sugar, especially when taken between meals. The same study also demonstrated that caries activity was much higher in younger than older age groups supplied with similar high sugar diets. In the older groups, however, the caries activity occurred most frequently on the cementum. This phenomenon may be attributed to a greater accumulation of plaque adjacent to root surfaces than to enamel surfaces once the gingival tissues have receded. If the plaque contains acidogenic organisms, then a high sugar diet will increase the risk of the cementum to acid attack resulting in a carious lesion on the root.

Plaque microorganisms — Bacteria are essential to the caries process but the organisms involved in the initiation

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Prevalence of root surface caries in selected contemporary North American populations

Table 1

Investigator	Population	No. examined	% with root surface caries
Hazen et al (1972)	Insurance company employees (18-82 years)	500	39%
Sumney et al (1973)	Residents of an American coast guard base (30-60 years)	172	47%
	Patients and staff of a US veterans' administration hospital (30-60 years)	135	49%

and progression of coronal and root surface caries probably differ. Although only a few reports have dealt with the microbiology of human root lesions,¹⁹⁻²¹ there are significant differences between bacterial populations associated with root and coronal caries.

Streptococcus and *Lactobacillus* species are strongly implicated in the aetiology of coronal caries but have not been isolated consistently from plaque overlying root surface lesions. When present, however, *Str mutans* may account for a significant proportion of the flora.^{20,21} In contrast, gram-positive pleomorphic rods, predominately *Actinomyces* species, have been isolated from virtually all root lesions sampled.²⁰⁻²² *A viscosus* has been identified by Syed et al²¹ as the single most predominant species in root caries plaque, averaging 40-50 per cent of the cultivable flora. Human isolates of *A viscosus* and the closely related *A naeslundii* can induce periodontal and root surface lesions routinely in experimental animals.^{19,22,23} At present it is difficult to determine which of the predominant bacterial species found in root surface lesions or in cementum plaque accumulations are responsible for initiating caries, since an analysis of the plaque flora at different stages of development of the lesion has not been attempted.

An additional bacteriologic difference between coronal and root surface caries is the apparent dissimilarity of species isolated from deep dentinal tissue within the lesions. While lactobacilli frequently predominate at the advancing front of coronal lesions, bacteria resembling members of the genus *arthrobacter* have been reported to occupy the same position in the group of root surface lesions which have been studied.²⁰ Whether or not *arthrobacter*-like bacteria are common to root lesions in general is unknown. Their presence in plaque has not been reported previously.

The differences in cariogenic bacterial populations col-

Number and per cent of edentulous adults in the United States 1957-58 and 1971

Table 2

	No. of edentulous adults	% of edentulous adults
1957-58	21,881,000	13.0%
1971	22,643,000	11.2%

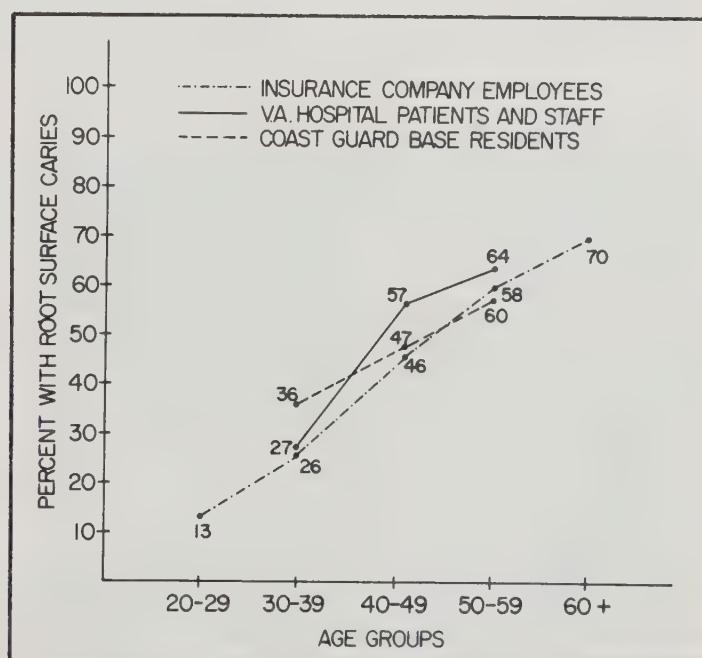


Fig 1 Prevalence of root surface caries in selected contemporary North American populations by age groups.

onizing enamel or cementum may be determined by several factors which differ in magnitude among young and old people such as the duration of exposure to the infectious agent, the consistency and flow rate of saliva, and the host's immune experiences. Once established, the nature of the bacterial flora on root surfaces may, in turn, influence the histopathology of the carious lesion, the selectivity of the site of attack, and the potential for spread of root caries infections from site to site in an individual's mouth or between individuals.

Periodontal disease — Exposure of the cementum to the oral environment seems to be a prerequisite for root surface caries. All reports on root surface caries have made reference to the presence of periodontal disease either prior to or at the time of initiation of root surface lesions. A recent epidemiological study has confirmed that a high positive correlation exists between the number of root surface lesions and the presence of periodontal disease.²⁴ However, not all types of periodontal diseases (and their associated plaque florae) may be equally conducive to the initiation of root caries. Sumney et al²⁵ have recently reported that root surfaces which had been associated with periodontitis pockets frequently showed signs of root caries under thick predominantly gram-positive plaques, whereas root surfaces associated with periodontosis pockets of similar depth were often relatively free of plaque and signs of caries.

Although the previously mentioned studies on ancient skulls and extracted teeth cannot comment on the condition of the soft tissue adjacent to the lesion, these reports had noted that alveolar bone recession and subgingival calculus occurred in the same locations as root surface lesions.

Saliva — Attempts have been made to define the role of saliva in the process of enamel caries.²⁶ However, its role in the aetiology of root surface caries has not been studied. Many authors have made reference to the fact that changes in the saliva with age may render the teeth of older patients more prone to dental caries.^{27,28} Although this interpretation is largely derived from clinical observation, it may be that aging changes in the saliva diminish its cleansing, antibacterial or buffering functions sufficiently to permit a more conducive environment for plaque accumulation on the root surfaces and the initiation of root surface caries. A reduction in flow rate alone, similar to that which has been implicated in post-irradiation rampant caries, may be all that is necessary to foster the accumulation of cariogenic plaque on roots. Reduced salivary flow in elderly patients has been linked to both the consumption of certain medications and to either chronic systemic conditions or physiological changes due to age.^{29,30} Very little is known of the qualitative changes of saliva with aging.³¹

The tooth root — Several characteristics of the root of the tooth itself must be considered in the aetiology of root caries. The surface of the cementum is not nearly as smooth as enamel, particularly where there are remnants of Sharpey's fibres.³² This might predispose the cementum to greater bacterial retention and plaque accumulation.

Cementum is composed of approximately 55 per cent organic framework consisting of collagenous fibrils embedded in a ground substance and 45 per cent inorganic material in the form of calcium salts. The high organic content of cementum may be an important determinant in the histopathology of root surface caries as it could retard demineralization and function as a framework upon which remineralization can more readily take place. The anatomy of the cemento-enamel junction itself may possibly influence the course of root caries. The cementum and the enamel meet end to end at the cemento-enamel junction in about 30 per cent of teeth. However, in 5-10 per cent of teeth they do not meet at all leaving the dentine exposed. In the remaining 60-65 per cent of teeth cementum overlaps the enamel at the cemento-enamel junction.³³ Ramsay and Ripa³⁴ found that the enamel and cementum did not meet in over 30 per cent of cases. The absence of cementum or the imperfect end to end joint at the cemento-enamel junction may physically facilitate the caries process in that area by providing ready access to the dentine and may account for the large number of lesions observed there. It has also been suggested that root caries penetrates most rapidly along the remnants of Sharpey's fibres,³⁵ but this does not explain why root caries tends to develop mainly at the cemento-enamel junction and not haphazardly over the entire root surface.

Fluoride level — Nakata and his co-workers^{36,37} have demonstrated that there is a general increase in fluoride concentration of the cementum with advancing age and exposure to higher levels of fluoride. Cementum is reported to have a higher fluoride content than enamel in all age groups and at varying levels of fluoride in the drinking water. It is not known, however, to what extent its higher concentration of fluoride may retard the caries process.

Oral hygiene — Although it is theoretically possible to clean the exposed root surface of retained natural teeth as efficiently as the enamel surfaces using conventional aids and methods, in actual practice, manual dexterity as well as enthusiasm and interest appear to diminish with advancing age. Moreover, the area to be cleaned is more complex. These two factors result in less efficient cleaning. Since there is a relationship between oral hygiene (plaque and debris) and root surface caries,²⁴ the decreasing ability of older patients to remove or otherwise disrupt the plaque becomes a major contributing factor in the disease.

Histopathology

Histological studies by Johansen and Furseth suggest that the caries process affects the enamel, cementum and dentine in a similar manner.^{38,39} Demineralization and remineralization occur as part of the caries process on the roots of teeth. The most conspicuous morphologic evidence of mineral removal is the occurrence of lacuna-like spaces or micro-channels in carious cementum left through crystal dissolution.⁴⁰ The lesion is believed to spread laterally between the concentric layers of the cementum. Selvig's findings support the theory that decalcification is involved in

root surface caries, but he also suggests that the agents responsible for the breakdown of the periodontal fibres may cause modification and possibly removal of the matrix collagen in the cementum^{42,43} prior to decalcification.

Clinical aspects

Clinically, root surface caries is identified as a chalky white or light brown stained cavitation on the exposed roots of teeth. The lesion is irregular in outline and usually shallow in depth, tending to spread laterally or vertically rather than penetrate to the pulp. As the lesion progresses, the discolouration intensifies and becomes dark brown or black.

The lesions are commonly found at the level of the crest of the gingiva and are usually covered with thick white or yellow plaque which often fills in the defect. Lesions occur on all surfaces of the root (Fig 2) but predominate on the proximal and facial aspects. They are initially confined to the root surface and the adjacent enamel is clinically unaffected. As the lesion increases in size, the enamel frequently becomes undermined.

There are at least two phases of the root surface caries process. The acute or active phase is characterized by a softened, lightly stained lesion at or below the level of the free margin of the gingiva. The chronic or remissive phase is characterized by a leathery, darkly stained lesion often left abandoned by the receding gingiva (Fig 3). The lesions progress by lateral advancement so that, left unattended, they may eventually encircle the tooth. The risk of pulp involvement is apparently minimal, and pain is not a common complaint.

Treatment

Incipient root surface lesions can be treated simply by rendering the lesion smooth and self-cleansing with a diamond stone and then applying topical fluorides to the cavitation. Restoration of deeper lesions necessitates some modifications of the basic principles applied to treating conventional enamel lesions. The apical margin of root surface lesions is often at the level of the gingival attachment. Rubber dam application may be difficult or impossible in most instances and a small flap may have to be raised to permit placement of the clamp. Root surface lesions which occur proximally without clinical involvement of the enamel (Fig 4) may render occlusal access impractical from the standpoint of convenience, instrumentation and gross removal of uninvolved enamel. A facial approach may be preferable in such situations. Advanced root surface lesions usually involve two or more adjacent surfaces of a root. Retention is affected as there is no "box" into which to condense the restorative material. Materials requiring minimal retention and placement with little or no condensation are indicated in these restorations. Spherical alloy and plastic materials with conditioning agents have been used with some success. Since cementum is a "soft" tissue the margins of the preparation are usually irregular and finishing restorations to them is often difficult.

In instances where the root surface lesion involves more

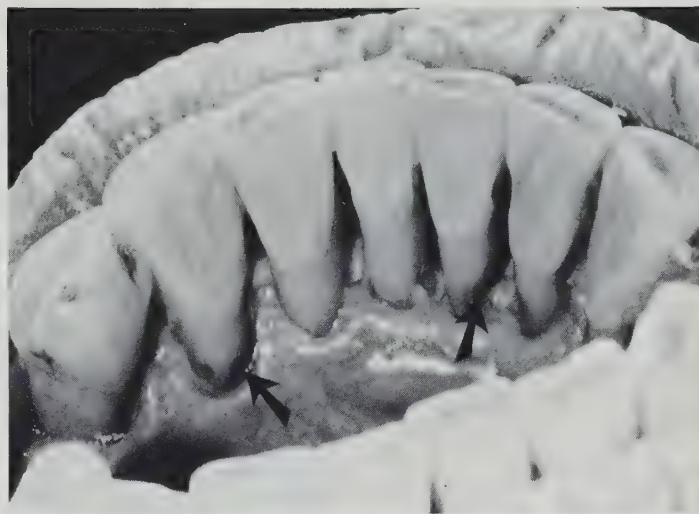


Fig 2 Developing root surface lesions on lingual surface of lower right cuspid and distal surface of left central and lateral incisors.



Fig 3 Advanced chronic root surface caries.



Fig 4 Root surface caries on mesial root surface of a lower cuspid.

than two surfaces or almost encircles the tooth, restoration may render the tooth incapable of resisting the normal stresses of mastication. Endodontic treatment or extraction of the tooth may then be indicated. If complete dentures are required, selected roots can be retained and incorporated into over-dentures.⁴⁴

Prevention

In view of the difficulties encountered in restoring root surface lesions, the best treatment is prevention. However, there are some inherent problems associated with this as well. Highly susceptible populations have not been identified. The natural history and specific aetiological mechanisms of the root caries process are not clear. Age has been found to be one associated factor, but the role of other factors such as fermentable carbohydrates, type of periodontal disease, properties of the saliva and nature of the bacterial flora must be investigated further in order to provide information on which to base preventive methods.

Since the cause of root caries is largely unknown, any preventive procedures now employed are largely empirical in nature. The efficacy of our present preventive methods for reducing enamel caries has not been evaluated for root surface caries. Nevertheless, several preventive approaches are currently used. Mechanical cleansing of the root surfaces with conventional aids, such as toothbrushes and dental floss, is advocated. If periodontal disease and root caries have a common aetiology, plaque control measures to prevent periodontal disease would also be expected to prevent root caries.

Topical fluorides have been advocated for use on cementum to increase its resistance to decalcification.⁴⁵⁻⁴⁸ Gels and varnishes have been suggested as vehicles because of their ease of application and their ability to remain on the root surface for extended periods of time. However, the frequency of fluoride application and the effect on the attack rate of root caries have not been evaluated in controlled clinical studies.

Antimicrobial agents may offer a solution to root caries prevention in the future. Experimental use of certain chemotherapeutic agents has been shown to substantially reduce the populations of some odontopathic bacteria in the plaque for extended periods.⁴⁹⁻⁵² Although the exact role of actinomyces and cariogenic streptococci in the aetiology of root surface caries is incompletely understood, there may be some justification for intermittent use of chemotherapy in heavily infected patients with rampant root caries or in cases where physical disability precludes adequate oral care.⁵³ However, the consequences of long term use of antimicrobial agents in humans have not been fully explored. Therefore, general use of antimicrobials to treat root caries should be discouraged at present, and not be pursued unless the predominant bacteria involved in the caries infections of individual patients are first identified.

The role of diet in the prevention and control of root surface caries is unclear since the relationship between specific dietary constituents and the root caries process is

not fully resolved. It is apparent from the Vipeholm Study that sugar-containing foods with a high retention capacity should be minimized, particularly at times other than meals. Sugarless gum and candies or low carbohydrate foods may be substituted if between-meal snacks are a source of enjoyment for the older person or if frequent meals are necessary.

Conclusion

Root surface lesions are likely to be encountered with greater frequency as the number of elderly persons retaining their natural teeth increases. The foregoing review outlines what is currently known about the disease. However, many questions concerning aetiology and prevention still remain unanswered. Definitive curative and preventive measures must await the results of further scientific research. Rational, empirical approaches to the treatment and prevention of the disease can be instituted, however, if the nature of the disease is understood. It is hoped that this paper will provide the general practitioner with a better understanding of the problem of carious lesions on the roots of teeth and enable him to deal more intelligently with it.

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For further information readers are referred to the following review article: Jordan, H. V. and Sumney, D. L. Root surface caries: review of the literature and significance of the problem. *J Periodont* 44:158, 1973.

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PERIODONTAL-ENDODONTIC LESIONS AND THEIR MANAGEMENT

P. S. Turner, MDS
Bombay, India

Communication between the pulpal tissues and the periodontium has been well documented.^{1,2} This inter-relationship is effected through accessory and lateral canals present along the length of the root and within the pulp chamber floor of bicusps and molars. This may explain why endodontic cases often manifest radiographic rarefaction in the periodontal structures of furcation areas of posterior teeth. Similar changes are also occasionally observed along the periodontal ligament of anterior teeth. After routine endodontic therapy without any periodontal treatment these lesions may resolve with complete regeneration of the affected periodontium. Disease in the periodontium can therefore advance to the pulp and disease of the pulp can likewise involve the periodontium giving rise to periodontal-endodontic lesions.

These lesions can be classified on the basis of aetiology and treatment into three types: (1) pulpal pathology inducing a periodontal lesion, (2) periodontal pathology inducing a pulpal lesion, and (3) combined lesions.

Pulpal pathology inducing a periodontal lesion — A periapical abscess may extend directly into the periodontal

tissues giving rise to a fistulous tract which opens midway between the gingival crevice and the apex of the tooth (Fig 1A, B) or through the gingival crevice into the oral cavity. Occasionally, inflammatory products of an infected pulp can provoke periodontal breakdown and even a periodontal abscess through the lateral canals. The treatment for this particular lesion is endodontic. In acute cases signs and symptoms subside promptly as soon as endodontic therapy is initiated (Fig 1C, D). In chronic cases where the fistula persists, a flap operation will be necessary to treat the periodontal and apical tissues simultaneously.

Periodontal pathology causing a pulpal lesion — Recent investigations^{3,4} have shown that the pulp can become inflamed (Fig 2A) and even die in response to periodontal pathosis extending by way of lateral and accessory canals. Treatment for this type of lesion is therefore primarily periodontal (Fig 2B) unless the pulp has succumbed. Supplementary endodontic therapy would then be necessary.

Periodontists^{5,6} have also observed some periodontal lesions with vital pulps which fail to resolve after exhaustive periodontal treatment but do so once the pulp is removed

Fig 1A

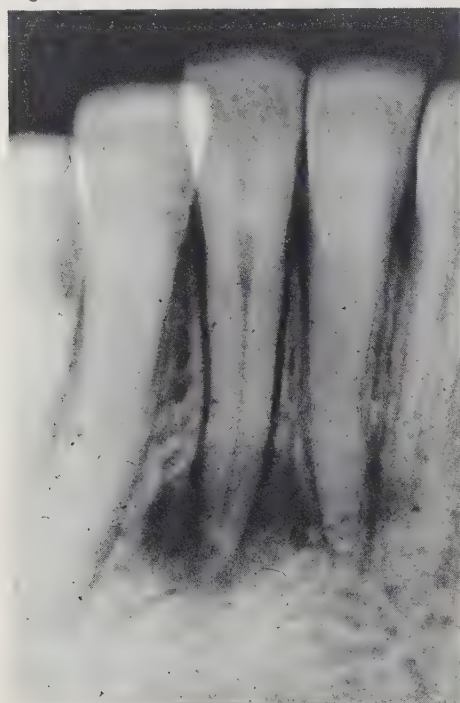


Fig 1B



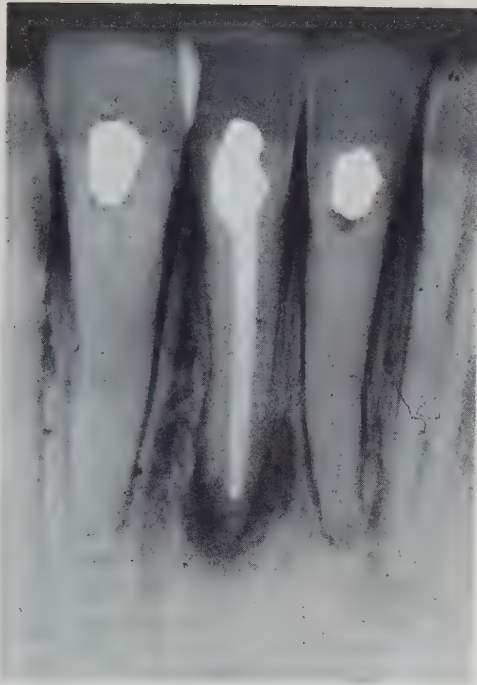


Fig 1C



Fig 1D

Fig 1 A, radiograph of a right mandibular central incisor showing direct extension of pulpal pathology into the periapical periodontal tissues. B, clinical appearance of the same tooth with a fistula opening midway between the gingival crevice and the apex. C, radiograph taken after routine endodontic treatment showing some resolution of the periapical lesion. D, clinical appearance demonstrating a complete tissue regeneration after endodontic treatment.



Fig 2A



Fig 2B

Fig 2 A, radiograph indicating the extent of a periodontal lesion on a left maxillary second molar. Clinically, the tooth exhibited signs of pulpitis. B, radiograph taken after flap operation and periodontal therapy showing reduction of the lesion. Clinically, all the signs of pulpitis disappeared.

and the root canals filled. This phenomenon has been attributed to a pulp that appears clinically vital but is nevertheless infected and inflamed by extension of periodontal disease through the lateral canals. The resultant pulpal pathology is held responsible for persistence of the periodontal lesions.

Combined periodontal-endodontic lesion — This lesion manifests when periodontal and pulpal disease occur simultaneously or when chronic periodontal disease extends down the root and involves the apical vessels causing pulpal necrosis (Fig 3A,B).

Both conditions require periodontal as well as endodontic treatment. In some cases apical surgery is also indicated because of the chronic nature of the lesion (Fig 3C,D). The

flap operation is ideally suited for such chronic combined periodontic endodontic lesions.

Operative procedure for combined lesions

With a No. 15 surgical blade, two vertical incisions are made from the mucobuccal fold to the marginal gingiva. The cuts should end at mesial or distal line angles; subsequent suturing and re-adaptation of the flap may be difficult if the cuts terminate in the interproximal gingiva. The blade should cut to the bone.⁷ The flap should extend on either side to at least one tooth beyond the involved area. This improves visual and operative access and ensures that the incision lines rest on sound bone. To provide an adequate blood supply to the flap the base should be broader than the free margin.

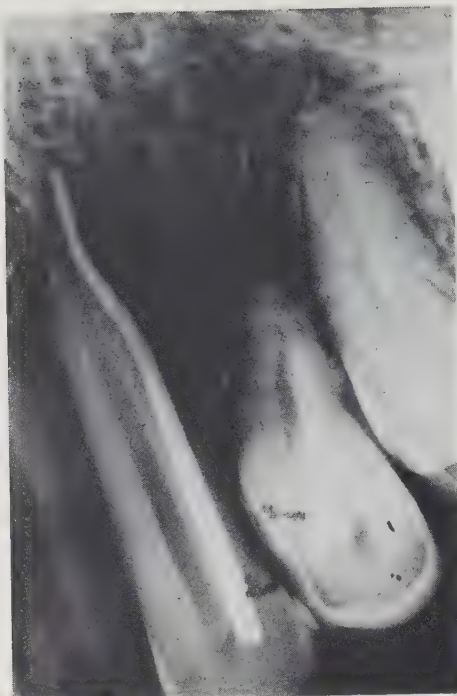


Fig 3A

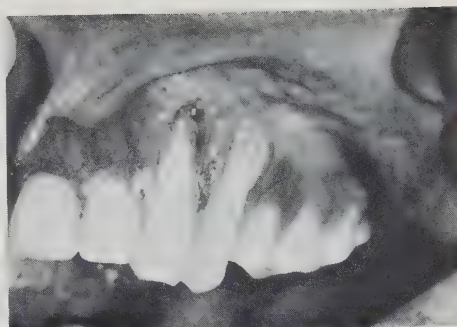


Fig 3B

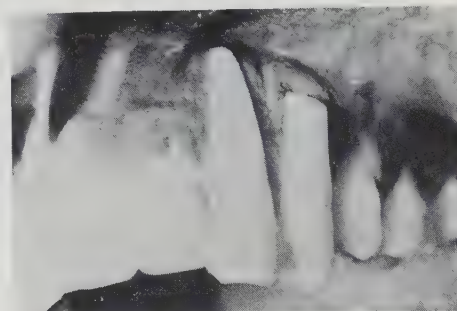


Fig 3D



Fig 3C

Fig 3 A, radiograph illustrating the extent of periodontal lesion on the left maxillary cuspid and first bicuspid which caused necrosis of the pulp by direct extension. B, clinical appearance before combined periodontal-endodontic treatment. C, radiograph taken after combined periodontal-endodontic treatment. D, clinical appearance after treatment.

A periosteal elevator is used to reflect the flap. The elevator is placed at the edge of one of the vertical incisions and the mucous membrane together with the periosteum is slowly raised by advancing the elevator along the bone as though you are actually scraping it.⁷ The flap is then retracted and kept in position by the other end of the periosteal elevator.

All granulation tissue present periapically and along the length of the root is thoroughly curetted until only healthy sound bone remains. If the granulation tissue is still sensitive, one may employ pressure anaesthesia by inserting the carpule needle directly into the area and injecting against the bone. If the endodontic treatment is not already completed, the root canals are opened at this stage and alternately reamed and flushed with 5 per cent sodium hypochlorite solution until all soft tissue is removed.

The root apex is bevelled lingolabially at a 45 degree angle with a No. 701 flat fissure bur under water spray. The bevelling gives better visual and operative access to the apical foramen. The root canal is then dried and the area round the apex packed tightly with absorbent cotton leaving the apex free.

Having selected an appropriate gutta percha point, the root canal is well coated with a suitable root canal cement. The gutta percha point is similarly coated with the cement and inserted in the canal until it penetrates through the apex and is firmly wedged in place. The protruding end is burished against the root apex with a heated ball burnisher.

In teeth with flaring apical foramina (Fig 4A) the apex is best sealed with silver amalgam (Fig 4B). Zinc-free silver

alloy is recommended to avoid the galvanic action⁸ that may ensue when regular zinc-containing silver alloy is used. The apical foramen is enlarged by means of a No. 2 round bur. For convenience, the preparation may be extended a short distance down on the labial surface of the root. The amalgam is carried to the cavity with tweezers, a plastic instrument or in specially made micro amalgam carriers. Condensation can be done with routine amalgam pluggers; however, small pluggers specially made for the purpose are to be preferred. Excess material is removed and the amalgam filling is finished with carvers. The extra fragments of amalgam are caught on the absorbent cotton packed round the apex and removed with it. A search should be made to remove any amalgam still remaining in the tissues. However, clinical experience has shown that small specks inadvertently left behind are well tolerated. Retrograde sealing of the apex is also the only answer for calcified and unnegotiable root canals (Fig 5A,B).

Attention is now diverted to the periodontal problem. All granulation tissue around the root is removed with suitable curettes. However, over-zealous curettage should be avoided because it often leads to loss of much needed supporting bone. The root is then planed with appropriate scalers so that no deposits remain.

Before suturing, the mucoperiosteal flap is freshened by scraping its inner surface with suitable curettes. Each interdental portion of the flap must be correctly adapted and sutured back in place. The vertical incisions are also sutured. A periodontal dressing may be placed over the operated area.

Fig 4 A, radiograph of a right maxillary central incisor with a flared apical foramen and persistent pathology after routine endodontic treatment. B, radiograph demonstrating regeneration of bone after retrograde amalgam filling. Fragments of amalgam remained but did not affect the outcome of the procedure. The tooth has given good service for the past seven years.



Fig 4A



Fig 4B

Fig 5 A, radiograph showing calcified root canal with infected cyst at the apex of right maxillary central incisor. B, radiograph showing regeneration of bone after enucleation of the cyst and sealing of apex with silver amalgam.



Fig 5A



Fig 5B

Fig 6 A, Extensive loss of periodontal tissues along the length of the root as well as in the apical region of a right maxillary lateral incisor. The tooth was treated surgically for a combined periodontal-endodontic lesion of endodontic origin. B, flap reflected one year later reveals regeneration of periodontal tissues.

Fig 5A

Fig 6A



Fig 6B





Fig 7 Fenestrating defect over a right maxillary central incisor after flap operation for combined periodontal-endodontic treatment.

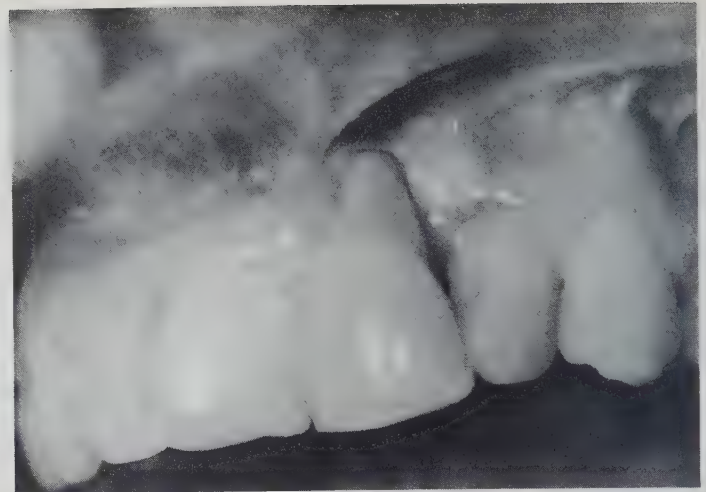


Fig 8 Dehiscence over a left maxillary central incisor after surgical procedure for combined periodontal-endodontic treatment.

Discussion

It is essential to determine the origin of a periodontal endodontic lesion because therapy varies accordingly. Pain is the chief diagnostic feature. It is the intensity of the pain which is important. Moderate pain occurs in periodontal as well as pulpal lesions with adequate drainage. Severe pain, however, is usually symbolic of pulp involvement, except in deep-seated bone-covered periodontal abscesses, acute necrotising ulcerative gingivitis and food impaction. Acute pain due to periodontal disease is continuous and localized to the tooth involved. Pain due to pulpal disease may be intermittent and diffused over the entire side so that the source is difficult to identify until the apical periodontium is involved.

Vitality testing of the pulp is an important aid in the diagnosis. Thermal tests are preferable to electrical testing. In a normal pulp pain ceases immediately on removal of a hot or cold stimulus. Pain which persists after removal of the stimulus usually indicates pulpitis or a pulp undergoing necrosis. Pain due to pulpitis is intensified by heat and cold depending upon the degree of pulpal inflammation. Periodontal pain has no relation with thermal changes.

A radiograph is helpful when there is a localized rarefaction in the periapical area which clearly signifies pulpal disease. However, when the periodontium is also involved it is very difficult to determine whether the two lesions have developed independently or whether one has developed in consequence of the other.

With the flap operation and combined endodontic periodontic treatment regeneration of bone and the periodontal tissues is possible (Fig 6A,B) provided the lesion is of endodontic origin with subsequent periodontal involvement. However, if chronic periodontal disease is the primary cause of destruction, subsequent regeneration is very doubtful.

Fenestration and dehiscence may result after any periapi-

cal surgery. Fenestration (Fig 7) occurs as an opening in the labial mucosa along the length of the root. The cause of this defect is not known. It may occur even after the most meticulous periapical surgery. Correction of the defect is difficult. Incising horizontally along the line of the defect and resuturing after relieving the tension by giving an incision in the alveolar mucosa directly above the lesion, has been suggested but results are not always satisfactory.

Dehiscence (Fig 8) occurs usually when the tooth concerned is situated more labially in the arch. The flap breaks away, refusing to cover the root, leaving it bare.

Dr. Turner is scientific officer, Dental Services, Medical Division, Bhabha Atomic Research Centre, Trombay, Bombay 400 085, India.

The author expresses sincere appreciation to F. S. Mehta, Chief of Dental Service, Bhabha Atomic Research Centre, for critical review of this paper.

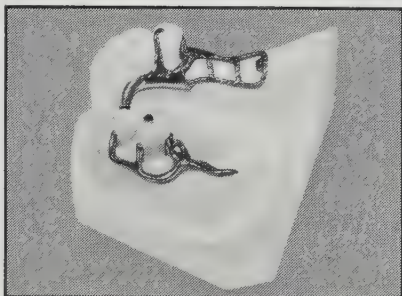
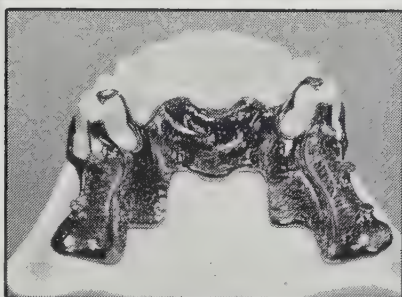
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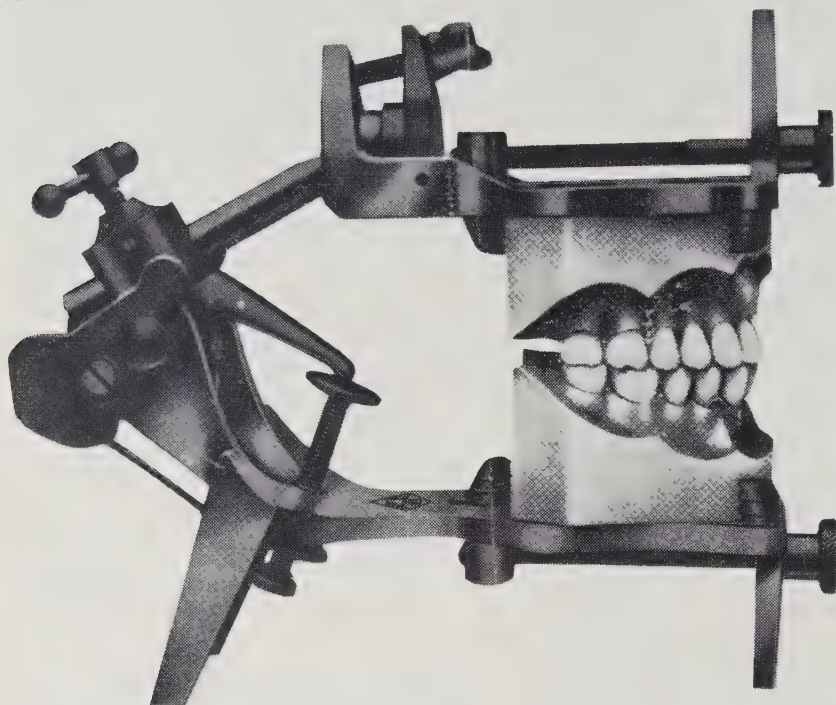
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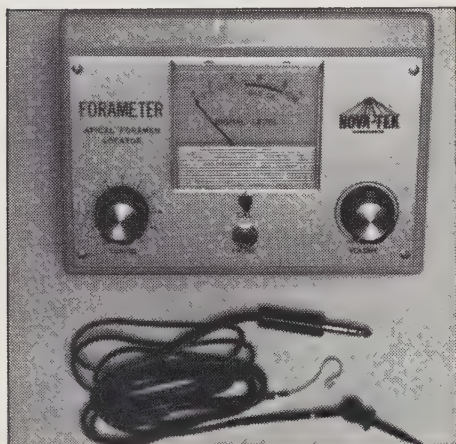


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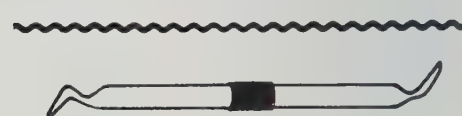
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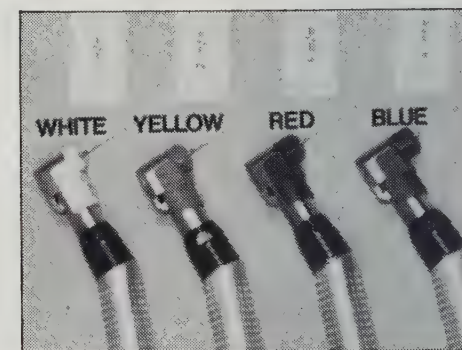


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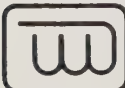
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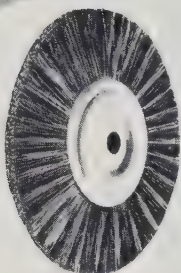
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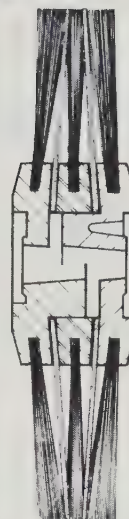


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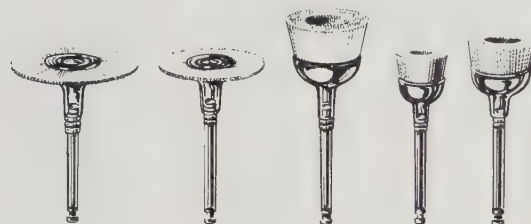
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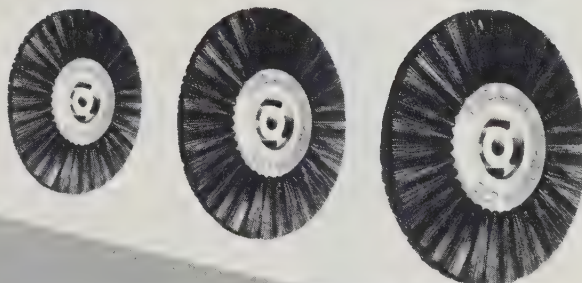
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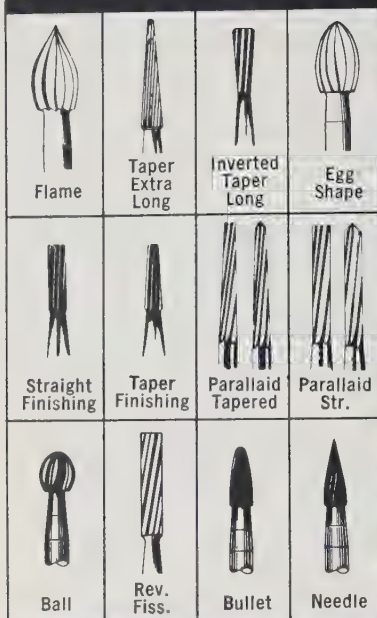
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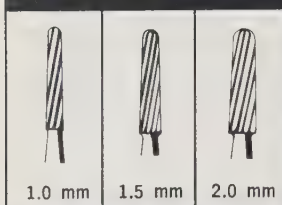
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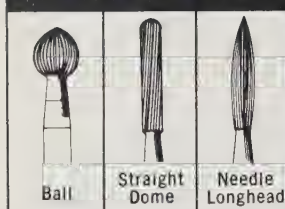
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ADVERTISERS' INDEX

Actionmatic	494
Amalgamated Dental	493
Ash Temple	518
Astra Pharmaceuticals (Canada) Ltd.	OBC
C. & L. E. Attenborough Ltd.	515
Block Drug Co. of Canada	498
L. D. Caulk Co. of Canada	467
Colgate Palmolive Ltd.	469
Cooper Laboratories	505
Dentsply International	464, 471, 485
Denco	480
Eaton Laboratories	IFC
Feature Finance	494
Charles E. Frosst	503
Inter-Unitek Canada Ltd.	478
Kodak Canada Ltd.	IBC
Lever Brothers	489
C. V. Mosby	497
Nobilium Products of Canada	495
Pelton and Crane	475
Pfingst and Co. Inc.	517
Procter and Gamble	463
Professional Pharmaceutical Corp.	504
Ritter Co.	476-477
Ticonium Company	511
Weil Dental Supplies Ltd.	512
Whaledent International	481

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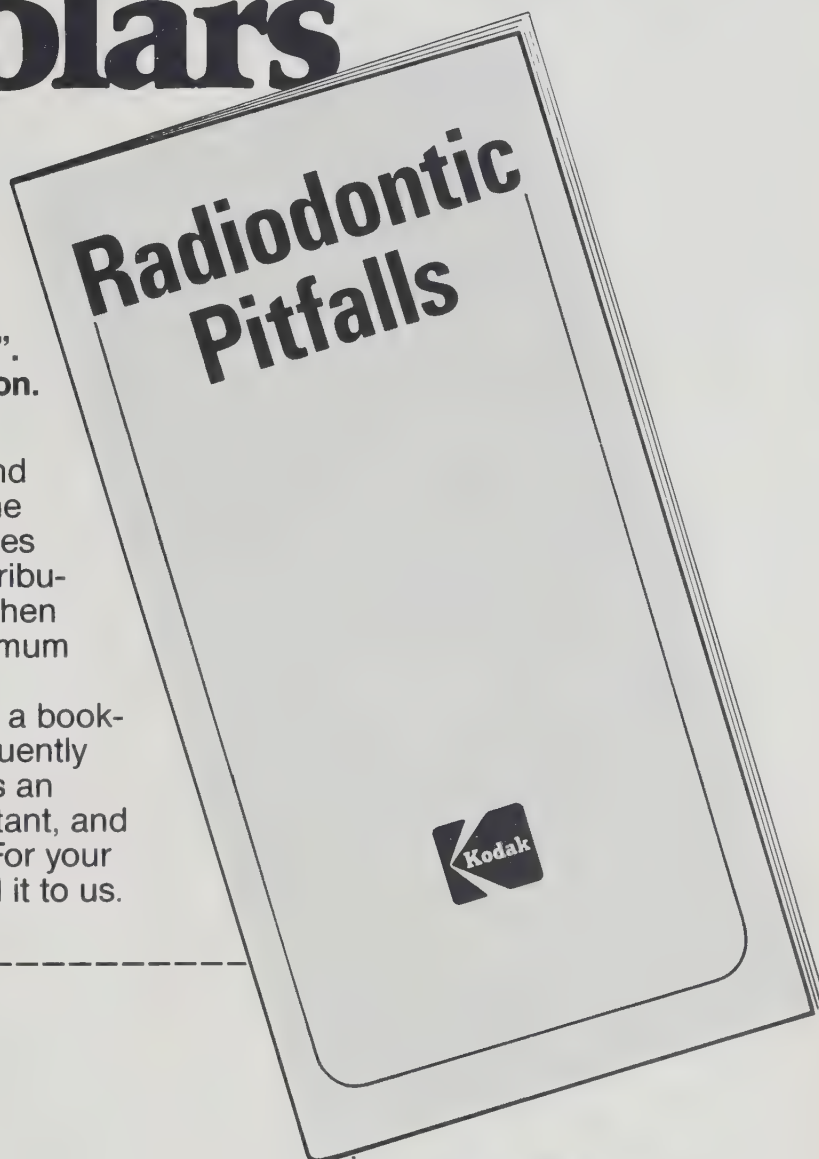
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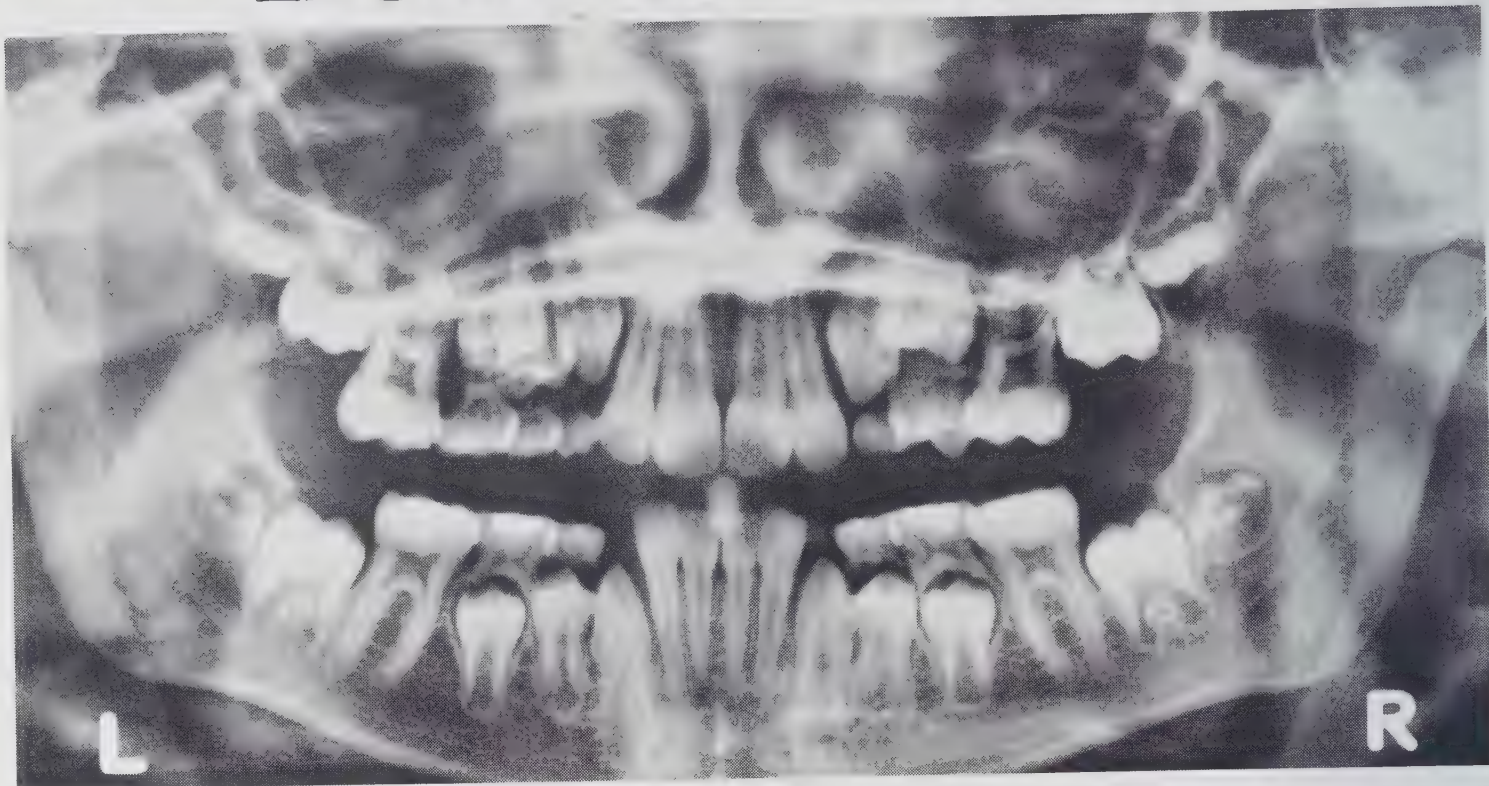
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JOURNAL

of the Canadian Dental Association
de l'Association Dentaire Canadienne
Nov 1976/Volume 42/No 11

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Special Feature

CDA Convention Report	539
-----------------------	-----

Regular Features

Announcements	522
Dentistry in the news	526
Les actualités dentaires	532
Deaths	530

Articles

The dentist's role in hypertension detection — Silverberg	549
Prevention of oral infections in patients receiving cancer therapy — Lavelle	551
Utilization of an oral pathology diagnostic service by dentists — Organ and Main	555

Classified advertising	559
------------------------	-----

Advertisers' index	562
--------------------	-----

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La direction du Journal ne partage pas nécessairement les opinions qu'expriment ses collaborateurs à moins que l'Association Dentaire Canadienne ne les ait adoptées officiellement.

Canadian Dental Association

1977, Toronto, Oct. 22-28

Fédération Dentaire Internationale

1977, Toronto, Oct. 22-28

Canadian Meetings

Toronto Academy of Dentistry, 39th Annual Winter Clinic Meeting, Nov. 25, 1976, at the Royal York Hotel, Toronto. Mrs. P. Williams, Executive Secretary, 230 St. George St., Toronto M5R 2N5.

Alpha Omega Fraternity Winter Meeting, Inn on the Park, Toronto, Dec. 8, 1976. Dr. G. Christensen will speak on Advances in Restorative Dentistry. Contact: Alpha Omega Fraternity, 2016 Bathurst St., Toronto, M5P 3L1.

Royal College Fellowship Examinations

Part I (Basic Sciences) Examinations, leading to Fellowship in the Royal College of Dentists of Canada will be held on *Monday, June 20, 1977*, in regional centres across Canada.

Applications for these examinations, with the \$100.00 examination fee, must be received at the Royal College by *January 15, 1977*.

Application forms (for the Part I examinations) and further information may be obtained from the Secretary-Registrar-Treasurer, Dr. John E. Speck, Ste. 614, 170 St. George Street, Toronto, Ontario M5R 2M8.

Part II (oral) Examinations will be held, as usual, in Toronto, late in November or early in December.

Health Care Evaluation Seminar, University of Calgary, Division of Community Health Science, Feb. 6-11, 1977. Seminar will focus primarily on maternal and child health. Contact: Christina Bergland, Seminar Coordinator, Division of Community Health, University of Calgary, 2920 — 24 Ave. N.W., Calgary, Alberta T2N 1N4.

Ontario Society of Periodontists and Canadian Academy of Periodontology, combined seminar, Chelsea Inn, Toronto, May 6, 1977. Clinicians: Drs. Tony Melcher, Richard Ellen and Robert Schallhorn. Topics to include oral biologic and clinical experimental research as it relates to clinical periodontology. Contact: Dr. Steven Richmond, (416) 491-6211 or Dr. Frank Compton, (416) 922-4223.

Ontario Dental Association, at Sheraton Centre (formerly Four Seasons Sheraton), Toronto, May 8-11, 1977. Mrs. W.C. Durham, 234 St. George St., Toronto, Ont. M5R 2P2.

Les Journées Dentaires du Québec, at Queen Elizabeth Hotel, Montreal, May 16-20, 1977. Dr. R.M. Lang, 5171 Decarie Blvd., Montreal, Que. H3W 3C2.

Congress on Cleft Palate and Related Craniofacial Anomalies, at Royal York Hotel, Toronto. June 5-10, 1977. Deadline for abstracts Sept. 30, 1976. Advance registration closes Dec. 31, 1976. Congress Secretariat, 191 College St., Toronto, Ont. M5T 1P7.

Western Canada Dental Society, at Banff Springs Hotel, Banff, Alberta. July 3-6, 1977. Dr. D. Pedlar, Public-

ity Chairman, Western Canada Dental Society, 1711 — 4th St. S.W., Ste 303, Calgary, Alta. T2S 1V8.

International Meetings

Greater New York Dental Meeting, 52nd Session, at New York Hilton Hotel, Nov. 27 - Dec. 2, 1976. For complete program contact: Greater New York Dental Meeting, New York Hilton, 1335 Avenue of the Americas, Suite 528, New York, N.Y. 10019.

International Congress of the Association Dentaire Française. At Paris, France. Nov. 30 - Dec. 4, 1976. Dr. J. Charon, Association Dentaire Française, 22 avenue de Villiers, 75017, Paris, France.

American Society for the Advancement of Anesthesia in Dentistry. Congress on Modern Pain Control, at Monte Carlo, Monaco. Dec. 2-7, 1976. Dr. A. Reyes-Guerra, 475 White Plains Rd, Eastchester, NY, USA.

International Congress for Preventive Dentistry and Oral Health, Costa del Sol at the Palacio de Congresos, Torremolinos, Spain. Initial dates set for the Congress, January 15-18, 1977 and March 5-8, 1977. Additional optional dates throughout January, February and March will be available. Sponsored by the American Society for Preventive Dentistry, 400 Shelard Plaza South, Minneapolis, Minnesota 55426.

Miami Winter Meeting, at Miami Beach, Jan. 23-26, 1977. Barbara Sims, 2 SE 13th St., Miami, Florida 33131.



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Eighth Asian Pacific Dental Congress, at Manila, Philippines, Feb. 7-12, 1977. Organizing Committee, Eighth Asian Pacific Dental Congress, c/o Professional Convention Planners, P.O. Box 945, Manila.

American Academy of Occlusodontia, 21st Annual Meeting, at the Essex Inn, Chicago, Feb. 18-19, 1977. Dr. A. R. Goldman, 1500 Shermer Rd., Northbrook, Illinois 60062.

Chicago Periodontal Research Study Club, Annual Seminar, Pick-Congress Hotel, Chicago, Feb. 19, 1977. Dr. Alvin J. Fillastre of Lakeland, Florida, will speak on "Physiology of Occlusion and its Application". Registration fee: \$50.00. Contact: Dr. Samuel Goldberg, 110 South Marion St., Oak Park, Illinois 60302.

American Dental Hygienists' Association, at Boston, March 20-April 3, 1977. Mr. John Venator, 211 East Chicago Ave., Chicago, Illinois 60611.

World Congress of Oral Implantology, at Cairo, Egypt, April 6-8, 1977. Alice Turner, International College of Oral Implantologists, Suite 7000, The Chrysler Building, 405 Lexington Ave., New York, 10017.

American Association of Endodontists, at Houston, April 13-17, 1977. Mrs. Eleanor L. Baker, P.O. Box 11728, Atlanta, Georgia 30305.

American Academy of Oral Medicine, at Toronto, May, 1977. Mrs. Joyce Guithues, 829 Hanamore Crescent, St. Louis, 63122.

American Academy of Orthodontics for the General Practitioner, Inc., at Delavan, Wisconsin, May 23-26, 1977. Mrs. M. L. Watson, 3953 North 76th St., Milwaukee, 53222.

American Academy of Pedodontics, at Bal Harbour, Florida, May 29 - June 1, 1977. Merle C. Hunter, 211 East Chicago Ave., Suite 1235, Chicago, Illinois 60611.

STATUS OF EDUCATIONAL PROGRAMS

The following updated list of programs evaluated by the Canadian Dental Association's Council on Education shows the status of various graduate and postgraduate programs in universities across Canada as of May, 1976. Undergraduate dental and dental hygiene programs and dental assisting programs were listed in the August, 1976 issue.

Name of university	Program evaluated	Accreditation status awarded
University of Alberta	Orthodontics	Approval
University of Alberta	Prosthodontics	Provisional approval
University of Manitoba	Periodontics	Approval
University of Manitoba	Orthodontics	Approval
University of Manitoba	Oral pathology	Approval
University of Toronto	Pedodontics	Approval
University of Toronto	Orthodontics	Approval
University of Toronto	Oral pathology	Approval
University of Toronto	Periodontics	Approval
University of Western Ontario	Orthodontics	Approval
McGill University	Oral surgery	Provisional approval
McGill University	Prosthodontics	Provisional approval
University of Montreal	Orthodontics	Approval
University of Montreal	Pedodontics	Provisional approval
University of Montreal	Oral surgery	Accreditation eligible
Dalhousie University	Oral Surgery	Approval

American Dental Association, 28th Annual Management Conference, at ADA Headquarters, Chicago, June 13-15, 1977, American Dental Association, 211 East Chicago Ave., Chicago, Ill., 60611, USA.

International Association of Oral Myology, Fifth Annual Convention, Lodge of the Four Seasons, Lake Ozark, Missouri, June 18-21, 1977. Contact: Dr. John Howland, 457 Coventry Green, Suite 120, Crystal Lake, Illinois 60014.

American Dental Society of Europe, Island of Rhodes, June 27 - July 1, 1977. Dr. James Molony, Secretary, 110 Harley St., London, W.I., England.

Swedish Dental Hygienists' Association, Sixth International Symposium on Dental Hygiene, at Stock-

holm, Sweden, June 30 - July 2, 1977. Symposium theme: plaque control. Working language: English. Eve Runsten, Secretary General, Sixth International Symposium on Dental Hygiene, c/o RESO Congress Service, S-105 24 Stockholm.

International Epidemiological Association, Eighth International Scientific Meeting, at Las Croabas, Puerto Rico, Sept. 18-23, 1977. Dr. Carlo Luis Gonzalez, Program Secretary, Universidad de Los Andes, Facultad de Medicina, Centro de Estudios de Post-Grado, Merida-Venezuela.

Dental Association of South Africa, Fifth International Scientific Congress, Stellenbosch, Republic of South Africa, Sept. 26-30, 1977. Contact: Dr. L. S. Maresky, Congress Secretary, PO Box 96, 7503 Parowvallei, C.P., South Africa.

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DIRECTOR GENERAL OF DENTAL SERVICES FOR CANADIAN FORCES

Colonel W. R. Thompson has been promoted to the rank of Brigadier-General and appointed Director General of Dental Services for the Canadian Forces.

General Thompson was born in Campbellford, Ontario, where he received his primary and secondary school education. He served during World War II with the Canadian Army as a dental assistant and in the Royal Canadian Air Force as a navigator. He completed his dental education at the University of Toronto in 1949 and immediately entered the Royal Canadian Dental Corps. His overseas service includes appointments as dental officer

with 25 Canadian Field Dental Unit (Korea) and Senior Dental Officer with 1 Fighter Wing RCAF, Marville, France.

Following a number of appointments as Senior Dental Officer and extensive post-graduate training in Oral Surgery, General Thompson instructed in Oral Surgery at the Canadian Forces Dental Services School. He served on two occasions as a Staff Officer in the Division of Dental Services at National Defence Headquarters. From 1970 to 1974 he was Commanding Officer of 13 Dental Unit at CFB Trenton, with regional responsibility for Ontario. During this period he also served as oral surgeon for



Brigadier-General W. R. Thompson

Kingston Military Hospital and in 1970 instructed in a course specifically designed for immigrant Czechoslovakian dentists in London, Ontario.

Prior to assuming his present position, General Thompson was Director of Dental Treatment Services in NDHQ.

In 1973 General Thompson was appointed as an Honorary Dental Surgeon to the Queen and inducted as a Fellow of the International College of Dentists. In 1975 he was elected Chairman of the Commission on Armed Forces Dental Services of the International Dental Federation. General Thompson resides in Ottawa.

Canadian oral surgeons strive for independence in research, education

During the 1976 annual meeting of the Canadian Society of Oral Surgeons, held this summer in Halifax, Dr. F. W. Lovely, president, stated that the Society is beginning to establish its own research, training and continuing education programs. He also predicted that, within the next five years, facilities will be available to put Canadian oral surgeons on a more independent footing from their American counterparts.

A major step toward providing for the profession's more independent status was taken during the meeting when the Society decided to rewrite its constitution, revise its objectives and place greater emphasis on continuing education for its members. Dr. Lovely

said the Society plans to hold general meetings biennially with three-day workshop retreats being held in the intervening years.

Dr. Lovely also explained that Canada has had to rely on the American universities to provide training and continuing education for most of its oral surgeons. Many oral surgeons practising in Canada retain active membership in the American Society which is forging ahead in research and development of the profession.

He pointed out that Atlantic Canada has suffered the most from the problems of regional distribution of oral surgeons. Only 12 of the Society's 117 members are located in the Atlantic region, seven of these in Nova Scotia.

At the present time, there are only four centres in Canada equipped for the training of oral surgeons. These are in Halifax, Quebec City, Montreal and Toronto. However, in another five years, Dr. Lovely said he expects to see similar programs being organized at the University of Manitoba, the University of British Columbia and, perhaps, at the University of Western Ontario.

The program at Dalhousie University has room for only one new candidate each year who is given a residency at the Victoria General Hospital in oral surgery. Dr. Lovely pointed out that this year the program received 19 applications from candidates across Canada, the United States and abroad for its one vacant position.

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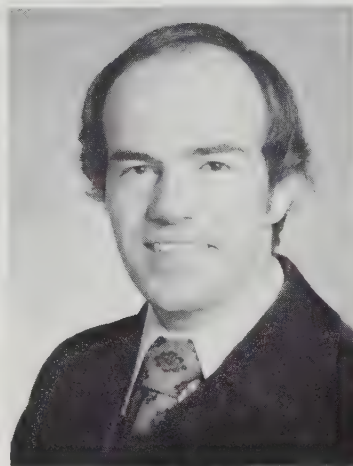
PAUL GREENACRE NAMED EDITOR OF CDA CASSETTE PROGRAM

Dr. Paul Greenacre of Ottawa has been named editor of the CDA audio cassette program of continuing education. His appointment, effective January 1, 1977, was announced jointly by the Canadian Dental Association and Medifacts Ltd. on September 11, 1976.

Dr. Greenacre will succeed Dr. George S. Beagrie who has served as editor since the program was introduced in 1971. However, Dr. Beagrie will continue his association with the program in the new position of chairman of a reconstituted editorial advisory board.

Dr. Beagrie's decision to retire after six years as editor was accepted with regret by the CDA and Medifacts, but with an understanding of the new work pressures imposed on him by his promotion to the directorship of the Division of Postgraduate Dentistry at the University of Toronto and by his election as incoming president of the International Association for Dental Research.

The CDA and Medifacts selected Dr. Greenacre from a number of impressively qualified applicants on the basis of his energy and enthusiasm, his editorial experience, his dedication to



Dr. Paul Greenacre

continuing education and preventive dentistry, and his versatility in his own general practice. The combination of these qualities promises to make him an editor ideally suited to shape a program of broad appeal to dental practitioners.

Paul Greenacre was born in South Porcupine, Ontario, in 1947. He studied dentistry at McGill University, where he co-edited and wrote for the McGill Dental Review and was active in promoting fluoridation and preventive dentistry programs in Montreal. After graduation he entered the armed

forces as preventive dentistry officer at CFB Ottawa. During this period, he wrote, directed and edited a film on preventive dentistry. In addition, he wrote and lectured widely on the same topic. He also served on the executive of the Ottawa Dental Society as public relations officer.

He was subsequently posted to Kingston, Ontario, as dental officer for the Royal Military College and the National Defence College, where he continued his writing on dental subjects. He was later posted to Europe where he treated the dental problems of the men of the Royal 22nd Regiment. During this time he developed a radio talk show, a 30-second plaque count to complement a public health project, and a methodology for comprehensive fluoride supplement.

Since leaving the service, Dr. Greenacre has been actively engaged in a busy prevention-oriented practice in association with Dr. Manning Norman of Ottawa. His work covers a full range of dental procedures. He is a dedicated general practitioner; a man who is well aware of the practical needs of general practitioners in updating their dental knowledge.

CDA Retirement Savings Plan

We apologize for omitting publication of the unit values of the Canadian Dental Association Retirement Savings Plan in the last three issues of the Journal. The following is an update of the missing unit values:

June 30, 1976

<i>Common Stock</i>	\$28.54
<i>Fixed Income</i>	\$17.04
<i>Guaranteed Fund</i>	\$12.71

July 31, 1976

<i>Common Stock</i>	\$28.76
<i>Fixed Income</i>	\$17.27
<i>Guaranteed Fund</i>	\$12.81

August 31, 1976

<i>Common Stock</i>	\$29.00
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<i>Fixed Income</i>	\$17.52
<i>Guaranteed Fund</i>	\$12.89
September 30, 1976	
<i>Common Stock</i>	\$28.64
<i>Fixed Income</i>	\$17.77
<i>Guaranteed Fund</i>	\$12.98

Total assets (market value) of the plan, as of September 30, 1976, were \$24,167,953.84.

For further information write to: CDA-sponsored Pension and Insurance Plans, 234 St. George St., Toronto, Ont. M5R 2P2.

Montreal Dental Club announces new executive

Members of the 1976-77 executive committee of the Montreal Dental Club are as follows: D. Kepron, president; L. Kent, first vice-president; R. Nadeau, second vice-president; D. J. Munro, immediate past president; J. M. Little, secretary; R. J. David, treasurer; D. Taylor, fall clinic chairman; P. E. Belisle, negotiations and representations; and R. A. Lefebvre, historian and archivist.

Directors of the Club are: D. J. Badger; P. E. Belisle; R. Kadowaki; E. Khazen; B. Nyeste; and J. W. Whitehead.

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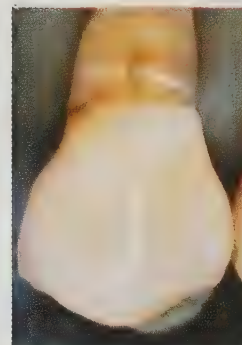
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Assures patient satisfaction—Cervident requires no operative procedures, reduces hypersensitivity, produces an esthetic restoration virtually undetectable from the patient's natural tooth color and contour.

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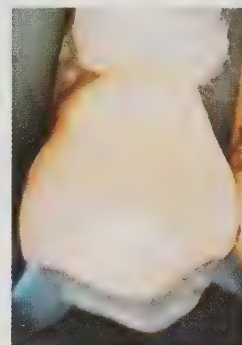
1.

Match tooth color to Cervident shade guide and isolate with rubber dam.



2.

Etch surface with Cervident etching solution, rinse and dry.



3.

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4.

Flow freshly mixed Cervident composite to desired contour.



5.

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LORNE E. MacLACHLAN FUND SET UP BY CANADIAN ACADEMY OF PROSTHODONTICS

The Canadian Academy of Prosthodontics has announced that a generous donation by Dr. Lorne MacLachlan of Ottawa to the Academy has resulted in the establishment of the Lorne E. MacLachlan Fund. This fund has been established for the purpose of improving the teaching of prosthodontics in Canadian Dental Schools.

Proceeds from this fund may be used in two ways:

1. To assist members of the Canadian Dental Association who are pursuing an accredited graduate program

in prosthodontics at an accredited University to purchase research equipment.

2. To fund, or assist in the funding, of a visiting lecturer in prosthodontics to appear before the undergraduate bodies of Canadian Dental Schools.

Persons interested in obtaining assistance from the fund should contact Dr. Paul S. Sills, Secretary-Treasurer, Canadian Academy of Prosthodontics, Faculty of Dentistry, University of Western Ontario, London, Ontario N6A 3K7.



Dr. Michel Jahjah

Executive officers for Montreal Dental Society

The Montreal Dental Society, with a membership of 500 Quebec dentists, recently announced the names of its executive officers for the 1976-77 term of office. They are: Michel Jahjah, president; Micheline Blain, president-elect; Laval Couture, vice-president; Pierre Gascon, treasurer; Yvon Desmarais, secretary; Pierre Duquette, assistant treasurer; Michel Plamondon, assistant secretary; Martin Payette, director of the bulletin; André Joly, adviser; and, Clément Rivest, Normand Brien and Normand Morrison, councillors.

Opponents of fluoridation called "poisonmongers"

A new book on health quackery entitled "The Health Robbers" contains a chapter on the opponents of fluoridation written by Mary Bernhardt, former secretary of the ADA Council on Dental Health. Titled, "The Poisonmongers" the chapter describes the varied activities of many anti-fluoridation groups.

The book features chapters by 23 health experts providing facts against the flow of misinformation fed to the public by health frauds and misguided organizations. It is edited by Dr. Stephen Barrett, a physician and chairman of the Board of Directors of Lehigh Valley Committee Against Health Fraud, and by Gilda Knight, a staff member of the American Institute of Nutrition.

W. J. DUNN ELECTED PRESIDENT OF ACFD

Wesley J. Dunn, Dean of Dentistry at the University of Western Ontario, has been elected president of the Association of Canadian Faculties of Dentistry for a two-year term. Dr. Dunn succeeds Kenneth C. Bentley of McGill University who will remain on the Association's executive council as immediate past-president.

Other members elected to executive office are: G. Nikiforuk, University of Toronto, vice-president; G. W. Myers,

University of Alberta, executive director; J. W. Neilson, University of Manitoba, treasurer; D. V. Chaytor, Dalhousie University, member; A. R. TenCate, University of Toronto, chairman of the committee on research; D. Forest, University of Montreal, chairman of the committee on education; and R. Coulombe of Lachine, Quebec, CDA representative, council on education.

DEATHS

Carty, Harry. 56. Kingston, Ont. University of Toronto, 1954. 2-9-76. Survived by Marjorie (wife), and Joseph and David (sons).

Desroches, Emile. 88. Montreal, Que. University of Montreal, 1919. 17-8-76.

Fraser, William Norman. 61. Creston, B.C. University of Alberta, 1938. 9-76.

Hamel, Maurice. Montreal, Que. McGill University, 1955. 9-76. Survived by Denise Sauvé (wife), and children, Louise, Gérard, Hélène and Jean.

Marchand, Jacques L. 49. Montreal, Que. University of Montreal, 1953. 21-7-76. Survived by Raymonde Michaud (wife), and children, Jocelyne, Carole, France and André.

Husolo, H. 51. Montreal, Que. McGill University, 1956. 4-8-76.

Macneil, William Hamilton. 58. Halifax, N.S. Dalhousie University, 1949. 20-8-76. Survived by Hilda Marie (wife), David and William (sons), and Brenda (daughter).

McLeod, Douglas J. 55. North Vancouver, B.C. University of Toronto, 1950. 9-76. Survived by Margaret (wife).

Turner, John Whitlock (Sr). 60. Niagara Falls, Ont. Royal College of Dental Surgeons, 1916. 26-7-76.

Vrbancic, John Ivan. 41. Calgary, Alta. University of Croatia, 1961. University of Alberta, 1971. 3-10-76. Survived by Bernada (wife), Jasna and Mirna (daughters) and Nenad (son).



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four-handed, direct and indirect vision dentistry. Side instrumentation delivery. An operating range from the eight o'clock to twelve o'clock positions.

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Un mot du rédacteur

Il n'appartient pas au nouveau rédacteur de faire l'éloge du Journal, mais plutôt d'accentuer son importance pour les dentistes, et plus particulièrement pour les dentistes francophones, dont ce devrait être le moyen d'information le plus direct, tant au point de vue scientifique que politique dentaire, en général.

La réalisation de cet objectif global peut se faire par divers moyens dont aucun n'est suffisant seul, et aucun rédacteur ne peut atteindre un idéal possible sans le concours de ceux qui, de près ou de loin, ont de l'intérêt à redonner à leur journal une vigueur de plus en plus certaine.

Le rôle du rédacteur sous-entend, dès lors, un travail de coordination entre les apports des confrères de pratique générale et des spécialistes, en ce qui touche l'aspect scientifique de la publication et des organismes et sociétés qui étendent leur action jusqu'aux questions de la politique dentaire.

Le succès de tout journal repose sur sa qualité d'information. Or, cette information doit d'abord être dirigée pour les praticiens généraux. Le milieu francophone est riche de généralistes qui se sont donnés davantage à une discipline particulière, et ce sont généralement des confrères qui vivent leur vie professionnelle d'une manière très intense, mais qui ne sentent peut-être pas le besoin ou le désir de communiquer leurs idées, leurs expériences, et c'est ainsi que peuvent se renfermer des conceptions de travail qui seraient valables pour les autres et dignes de publication.

Le Journal de l'Association leur tend la main et demande leur appui.

Les spécialistes, on le comprend, sont indispensables. Non seulement sont-ils constamment à la fine pointe des informations, mais aussi sont-ils les mieux qualifiés pour commenter les théories, les idées nouvelles qui émergent des autres publications, des avancées qui sont faits lors des congrès et réunions scientifiques diverses.

Cependant, les spécialistes ont eux-mêmes leur propre moyen de diffusion par un journal, et il est normal qu'ils cherchent à atteindre davantage leurs propres collègues. Pourtant, certains écrits peuvent être d'un intérêt certain dans le cadre d'une pratique générale. A eux aussi, nous tendons la main pour accueillir les textes qu'ils voudront bien nous faire parvenir.

Quant aux organismes, aux sociétés, ils ont tout avantage à utiliser le Journal pour faire passer leurs messages.

Il va de soi que le Journal compte énormément sur l'appui de nos facultés dentaires canadiennes françaises. L'Université est riche de deux (2) éléments en particulier. D'abord, des étudiants qui se préparent à la profession. Par leurs contacts avec les spécialistes qu'ils côtoient quotidiennement et les travaux écrits qu'ils rédigent, ils peuvent devenir extrêmement valables.

Les étudiants, d'autre part, trouveront là une occasion de faire un entraînement — pourquoi pas une habitude? — à la rédaction scientifique.

Les professeurs ont tous les préparations de cours qui peuvent s'intégrer dans le journal. Nous osons les remercier à l'avance. Les généralistes sauront, par ces cours, retourner aux bases et se familiariser avec les idées nouvelles. En fait, le généraliste a souvent plus d'intérêt à ce retour qu'à lire des articles sur des techniques et des théories qui ne relèvent que de la haute spécialité. Les deux (2) dimensions se retrouvent dans le journal.

1. C'est bien volontairement que nous sou-entendons, dans notre demande de textes, l'idée du devoir envers notre profession et nos confrères. Au fond, il s'agit de faire profiter son prochain et la population dont nous sommes les responsables de la santé buccale. Les autres arguments deviennent superflus.

2. Nous avons l'intention, dès que nous aurons organisé les cadres, de publier mensuellement des notes, des articles, dans toutes les disciplines de la

dentisterie et ce, en fonction du généraliste.

On portera également une attention particulière aux lettres que les confrères jugeront bon de nous envoyer et n'écarterons pas l'idée d'échanges et de discussions scientifiques dans cette rubrique.

Pour des raisons qui se dégageront d'elles-mêmes à la lecture des articles qui paraîtront, une attention toute particulière sera donnée à l'occlusion.

Qu'il suffise, pour l'instant, de dire que certaines écoles dentaires y consacrent environ 600 heures dans le curriculum sous gradué.

Nous avons l'intention, au cours de notre mandat, de présenter un article sur ce sujet à chacune des publications.

Or, l'étude de l'occlusion ressemble un peu à un "puzzle": on en saisit l'image totale à mesure qu'on rassemble les morceaux.

Nous tenterons de faire un agencement permettant une compréhension plus rapide.

Essentiellement, voilà le programme que le rédacteur s'est tracé au début de son mandat. Se voulant très ouvert aux suggestions, il acceptera avec gratitude les idées qu'on voudra bien lui soumettre.

Pour terminer, le rédacteur désire réitérer le vœu perpétuel de toute organisation, de tout groupement: "tous ensemble". Il ose enfin faire appel à la fierté.

Les francophones de la Province de Québec peuvent se rendre service à eux-mêmes, aux francophones étrangers et, par voie de conséquence, ce sera servir la profession.

Envoyer toute correspondance ou manuscrit au: Dr Robert Lambert, 9, Dufferin, Granby, Québec.

Dr Lambert est le nouveau rédacteur scientifique de langue française du Journal de l'Association Dentaire Canadienne.



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MFP = stabilité. Si on entrepose certains dentifrices pendant un an, ils peuvent perdre la moitié de leurs ions de fluorure, mais le fluorure MFP de Colgate* est plus stable. En effet, même après trois ans, le monofluorophosphate de sodium demeure en grande partie soluble et peut encore agir sur l'émail des dents.

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"Colgate avec MFP s'est révélé un dentifrice préventif contre la carie dentaire et son emploi peut avoir une valeur importante lorsqu'on l'utilise dans le cadre d'un programme d'hygiène buccale exécuté avec application et de soins dentaires professionnels réguliers."

CONSIDERATION DES GUIDES D'HONORAIRES EN VERTU DE LA LOI RELATIVE AUX ENQUETES SUR LES COALITIONS

Nous avons publié, dans le numéro d'août du "Journal", un article traitant de la modification portée à la Loi relative aux enquêtes sur les coalitions et spécifiquement de l'article 32 de la loi. Cet article, qui interdit la conclusion d'accords diminuant indûment la concurrence est applicable à l'industrie des services depuis le 1er juillet 1976.

L'article présentait en détail la correspondance échangée entre le Directeur exécutif par intérim de l'Association dentaire canadienne, M. Lloyd Stevenson, et le Directeur des enquêtes et recherches de la Loi relative aux enquêtes sur les coalitions, relativement à la loi et à son application à la profession dentaire. L'article présentait également en totalité, un projet de lettre préparé par les conseillers juridiques de l'ADC, qui avait été envoyé par M. Stevenson à toutes les corporations professionnelles provinciales les invitant à le transmettre à leurs membres, afin que tous les dentistes du Canada se rendent bien compte qu'un guide d'honoraires ne constitue qu'un barème consultatif de directives et qu'ils ne sont nullement tenus de l'adopter.

Vers la fin du mois de juillet, M. Stevenson a reçu une nouvelle lettre du Directeur des enquêtes et recherches de la loi et, en annexe, la copie d'une lettre envoyée par ce dernier au Dr John Roo-

ney, Directeur exécutif et registraire de la Société dentaire du Nouveau-Brunswick, lui communiquant des renseignements sur l'interprétation de la loi se rapportant à la question de guides d'honoraires. Il déclarait dans cette lettre:—

"La Loi relative aux enquêtes sur les coalitions ne me procure pas l'autorité en vertu de laquelle je serais en mesure d'imposer des règlements irrévocables quant à l'application de la loi. Je suis toutefois disposé à expliquer les circonstances qui m'obligeraient à entreprendre une enquête si j'estimais qu'une infraction à la loi avait été ou allait être commise.

"La circulation d'un guide d'honoraires ne constituerait pas en soi un motif suffisant pour entreprendre une enquête. La diminution undue de concurrence dépendrait partiellement des circonstances dans lesquelles le guide d'honoraires a été établi et des résultats provoqués par sa circulation. Mettons, par exemple, que les membres d'une profession d'une région décident que leurs honoraires sont très sensiblement au-dessous du tarif raisonnable et qu'ils doivent établir un nouveau guide pour remédier à la situation. Un comité est alors constitué pour fixer un barème d'honoraires plus élevé et ses recommandations sont transmises aux mem-

bres au cours d'une assemblée de l'Association; à l'issue de discussions sur les tarifs proposés, les membres autorisent l'exécutif de l'Association à faire paraître le guide proposé avec ou sans modifications. Si ces mesures sont prises dans l'espoir que les membres adhèrent, en principe, au nouveau guide, et si, en fait, les membres y adhèrent sensiblement, un tribunal pourrait facilement conclure que toute cette procédure constitue une mesure destinée à diminuer indûment la concurrence dans le cadre du sens de la loi. Si toutefois les membres n'adhéraient pas d'habitude au guide de très près et si l'on ne s'attend pas à ce que les honoraires fassent l'objet d'une modification sensible par suite à la publication du nouveau barème, il est peu probable qu'un tribunal puisse prouver qu'il existe un accord indu.

"Je regrette ne pouvoir être plus explicite, mais j'espère que ce qui précède pourra vous être utile."

A titre de commentaires, M. Stevenson a déclaré: "Il semble que nous devons faire preuve de beaucoup de prudence en ce qui concerne la tenue d'une assemblée destinée à approuver un guide d'honoraires, en vue de ne pas placer la profession dans une situation qu'un tribunal pourrait interpréter comme étant une entente faite pour diminuer indûment la concurrence."



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L'ASSOCIATION DENTAIRE DE L'ALBERTA NOMME UN NOUVEAU DIRECTEUR EXECUTIF

Le Dr Bruno P. Martinello vient d'être nommé au poste de Directeur exécutif de l'Association dentaire de l'Alberta. Il est officiellement entré en fonction le 1er juillet de cette année.

Né à Toronto, Dr Martinello a obtenu son diplôme à la Faculté dentaire de l'Université de Toronto en 1955. En 1962, également à l'Université de Toronto, il obtient son diplôme en Santé dentaire publique et exerce à titre de Directeur dentaire régional pour la région sud-ouest de l'Ontario jusqu'en 1965. En 1965, il s'installe en Alberta et pour deux ans, il travaille à titre de Directeur des Services de santé de Sturgeon. A partir de 1966, il enseigne à temps partiel à l'Ecole d'Hygiène dentaire de l'Université d'Alberta et l'année suivante, il commence à enseigner à plein temps au Département de dentisterie communautaire de la Faculté dentaire.

En 1968, le Dr Martinello est nommé Chef du département de l'ensemble des disciplines qui constituent le domaine de la dentisterie communautaire à l'University of Western Ontario. Il y obtient une chaire de professeur en 1974. De plus, de 1972 à 1976, il représente la Faculté au Conseil d'administration du Collège royal des chirurgiens

dentistes de l'Ontario. De 1970 à 1976, il siège au sein de plusieurs comités du ministère de la Santé de l'Ontario et il est membre de divers comités faisant partie de la Société dentaire locale, de l'Association dentaire de l'Ontario et de la Société canadienne des dentistes en santé publique. Il était également président des équipes d'accréditation du programme d'Hygiène dentaire de l'Association dentaire canadienne. Les articles du Dr Martinello ont paru dans le Journal de l'Association dentaire canadienne aussi bien que dans celui de l'Association canadienne de la Santé publique.

En 1975, le Collège royal des dentistes du Canada lui confère le titre de membre originaire (Charter Fellow) en Santé publique. Il obtient le certificat de spécialiste du Conseil national des examinateurs dentaires du Collège royal des dentistes du Canada en 1976.

Entre autres, le Dr Martinello est également membre des organismes professionnels suivants: Collège royal des chirurgiens dentistes de l'Ontario; Association dentaire canadienne; Associations de la santé publique du Canada et de l'Ontario; Sociétés des dentistes en Santé publique du Canada et de l'Ontario; et Collège royal des dentistes du Canada.

Le FCED reçoit un don de la Compagnie Medi-Dent

Le vice-président du Fonds canadien d'éducation dentaire, Monsieur Stanley O. Tebbutt, a exprimé la reconnaissance profonde qu'éprouve le FCED à l'égard du don spécial fait par la Compagnie Medi-Dent, destiné à couvrir les frais d'ameublement et d'équipement pour le nouveau siège social du Fonds, situé au 44 ouest, avenue Eglinton, à Toronto. Selon M. Tebbutt, ce don spécial s'ajoute à la subvention annuelle accordée si généreusement par la compagnie depuis 1963, à l'appui des divers programmes entrepris par le Fonds.

C'est depuis le 12 juillet 1976 que le FCED occupe ses nouveaux locaux; le déménagement s'est effectué un peu avant celui de l'ADC à Ottawa.

En ce qui concerne le déménagement, M. Tebbutt déclare: "A la suite de l'étude prolongée de tous les aspects de la question, les administrateurs ont décidé que le Fonds réaliserait plus efficacement ses objectifs — soit la contribution de l'aide nécessaire à l'éducation et à la recherche dentaires — en maintenant son siège social à Toronto. Le Fonds éprouve beaucoup de gratitude vis-à-vis de l'ADC pour l'espace qu'elle a mis à sa disposition et le grand nombre de services estimables qu'elle lui a rendus à un prix fictif, pour toutes les années durant lesquelles les bureaux du Fonds étaient situés dans l'immeuble de l'Association à Toronto.

Régime d'épargne-retraite de l'ADC

Les valeurs respectives du Régime d'épargne-retraite de l'Association Dentaire Canadienne étaient les suivantes:

au 30 juin 1976

<i>Fonds d'actions ordinaires</i>	\$28.54
<i>Fonds à revenu fixe</i>	\$17.04
<i>Fonds avec garantie</i>	\$12.71

au 31 juillet 1976

<i>Fonds d'actions ordinaires</i>	\$28.76
<i>Fonds à revenu fixe</i>	\$17.27
<i>Fonds avec garantie</i>	\$12.81

au 31 août 1976

<i>Fonds d'actions ordinaires</i>	\$29.00
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<i>Fonds à revenu fixe</i>	\$17.52
<i>Fonds avec garantie</i>	\$12.89

au 30 septembre 1976

<i>Fonds d'actions ordinaires</i>	\$28.64
<i>Fonds à revenu fixe</i>	\$17.77
<i>Fonds avec garantie</i>	\$12.98

L'avoir total (valeur marchande) du régime se montait à \$24,167,953.84.

Pour de plus amples renseignements, veuillez écrire à CDA-sponsored Pension and Insurance Plans, 234 St. George St., Toronto, Ont. M5R 2P2.

L'Association Alpha Omega

La Société dentaire Mont-Royal et la Section des diplômés de Montréal de l'Association Alpha Omega viennent d'annoncer l'élection de leur nouvel exécutif pour l'exercice 1976-77.

Les membres suivants ont été élus: Drs Melvyn Hershenfield, président; Ezra Kleinman, vice-président; William Klein, secrétaire à la correspondance; Stephen Miller, secrétaire aux procès-verbaux; Richard Topolski, trésorier; Peter Safran, trésorier-associé; Avrum Sonin, éditeur; et David Zacharin, archiviste.

UNE ETUDE REALISEE A TORONTO PROUVE QUE LA FLUORATION DIMINUE DE MOITIE LES CARIES INFANTILES

Selon une étude sur la santé publique, la fluoration des eaux domestiques de la région métropolitaine de Toronto a diminué de moitié les caries dentaires parmi les jeunes enfants.

L'étude effectuée par le Dr D. W. Lewis, chef du département de Dentisterie communautaire à l'Université de Toronto, formule que plus un enfant était jeune lors des débuts de la fluoration de l'eau de la région métropolitaine de Toronto en 1963, plus il avait de chances de ne pas faire l'objet de carie dentaire.

Le Dr George Moss, Officier de la santé publique à Toronto, déclare dans une lettre annexée à l'étude: "Aucune autre mesure préventive dans le domaine de la santé dentaire n'a eu des résultats si positifs et si solidement do-

cumentés." Il ajoute que l'étude "justifie à fond" la décision controversée prise à l'égard de l'adoption de la fluoration en 1963. Cette mesure fut adoptée à l'issue d'une longue série de différends d'ordre juridique, de litiges d'ordre législatif, et d'un référendum qui n'a procuré qu'un très faible appui à la fluoration.

Le Dr Lewis, auteur de l'étude, a déclaré que la fluoration de l'eau revient à moins de douze cents par an, par personne, et qu'elle diminue considérablement le coût des traitements dentaires. Les statistiques publiées prouvent que les caries de dents de lait diminuent de moitié pour les enfants âgés de cinq, sept et neuf ans. En ce qui concerne les dents permanentes, les caries diminuent de 44%. Le pourcentage

d'enfants âgés de cinq ans, dont les dents sont entièrement exemptes de carie, a doublé depuis 1963.

Les bienfaits de la fluoration se font également sentir parmi les enfants de plus de 13 ans, nés avant la mise en oeuvre du programme. On constate que les enfants de treize ans ont fait preuve en moyenne, en 1974, de trois dents cariées, en regard d'une moyenne de plus de cinq dents en 1964.

Le Dr Lewis ne tient absolument pas compte de la possibilité qu'il y ait des facteurs autres que la fluoration des eaux domestiques qui puissent avoir influencé des résultats. Il fait remarquer que pour les agglomérations à l'eau non fluorée, on ne peut constater une diminution de carie de cet ordre.

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MICHAEL CRIPTON INSTALLED AS PRESIDENT OF CDA

Michael J. Crompton of Moncton was installed as President of the Canadian Dental Association on September 15 during the Association's 1976 National Convention in Edmonton.

Dr. Crompton was born in Montreal and is a 1957 dental graduate of McGill University. In 1960, he obtained his specialist's diploma in orthodontics from the University of Montreal. Since that time he has operated a solo orthodontic practice in the city of Moncton. In 1967 he was made a fellow of the Royal College of Dentists of Canada.

Dr. Crompton has long been active in organized dentistry. He is a member of the American Association of Orthodontists, the Northeastern (U.S.) Society of Orthodontists and the European

Orthodontic Society. He served as the governor for New Brunswick on the Board of the Canadian Dental Association and as the Atlantic province's representative on the board of the Canadian Fund for Dental Education. He was also a member of the National Dental Examining Board for five years.

In addition to serving on the Executive Council of the Canadian Dental Association since 1974, Dr. Crompton has headed up a number of councils and committees for the CDA in recent years. He was chairman of the Council on Education in 1973-74, and, in 1975, was named chairman of the Finance Committee and the Ad Hoc Committee on Priorities. He also served as a member of the CDA's Ad Hoc Committee on Insurance.



Dr. Michael J. Crompton

LLOYD STEVENSON APPOINTED CDA EXECUTIVE DIRECTOR

The Executive Council of the Canadian Dental Association announced the appointment of Lloyd A. Stevenson as Executive Director of the CDA during the Association's 1976 annual meeting in Edmonton.

Mr. Stevenson joined the Association staff in May, 1975, as Director of Administration and, on June 1, 1976, was appointed Acting Executive Director. He succeeds Dr. William G. McIntosh who resigned earlier this year.

Prior to joining the CDA, Mr. Stevenson was Vice-President of Operations for Villacentres Ltd., a multi-million dollar nursing home chain.

A graduate of the University of Toronto's course in Institutional Management, Mr. Stevenson also studied psychology and sociology at McMaster University, and philosophy

at the University of Western Ontario. He is a Fellow of the American College of Nursing Home Administrators and a certified Canadian Public Health Inspector.

Mr. Stevenson has more than 20 years' experience at senior levels of administration and management in the health care field. He is a past president of the Ontario Nursing Home Association, a past chairman of the Institute in Nursing Home Care, and Governor of Canada for the American College of Nursing Home Administrators. He is also a member of the following organizations: the American Geriatrics Society; the American Nursing Home Association; the Board of the Canadian Council of Hospital Accreditation for Extended Care Facilities in Canada; and the Toronto Board of Trade. In

addition, he was awarded an honorary membership by the Nova Scotia Nursing Home Association and an honorary life membership by the Ontario Nursing Home Association.

Mr. Stevenson has had considerable experience in negotiating union contracts and as an arbitrator in the labour-management field. He is well known as a guest speaker at the conventions of many major associations in the health care field and has served as a guest lecturer for the University of Ottawa's Masters Degree Program in Hospital Administration.

His experience in negotiating with governments at the deputy minister and ministerial levels will undoubtedly prove a valuable asset now that the Association has relocated to its new Ottawa headquarters.

DONALD RIFE ACCLAIMED CDA PRESIDENT-ELECT

Donald L. Rife, well-known Toronto dentist, was acclaimed president-elect of the Canadian Dental Association during the Association's annual board meeting in Edmonton. He will take up his gavel as CDA president at the conclusion of the 1977 annual meeting in Toronto.

A native of Toronto, Dr. Rife served for more than five years in the Canadian Dental Corps during World War II as a dental assistant and, mainly, as a dental technician. Following his graduation from the University of Toronto's Faculty of Dentistry in 1950, he entered private practice, gradually restricting his practice to dentistry for children.

Dr. Rife conducted a practice limited to children for 18 years and, during part of this period, was a member of the American Academy of Pedodontics. He returned to a family practice of general dentistry in the spring of 1975.

Dr. Rife has served organized den-



Dr. Donald L. Rife

tistry in many capacities. He is a member and past president of the Canadian Society of Dentistry for Children, a member of the American Academy of

Dentistry for the Handicapped, a member of the Fédération Dentaire Internationale and, of course, a member of both the Ontario and Canadian Dental Associations.

At the present time, he holds the following elected offices: member of the Council of the Ontario Chapter of the Canadian Society of Dentistry for Children; National Secretary-Treasurer of the Canadian Society of Dentistry for Children; and a member of Council of the North Toronto Dental Society. Dr. Rife is also a member of both the Board of Governors and the Executive Council of the Ontario Dental Association and the Board of Governors and the Executive Council of the Canadian Dental Association.

In addition to his involvement in professional dental organizations, Dr. Rife is a member of the Canadian Power Squadrons and of the Royal Philatelic Society of Canada.

CANADIAN DENTAL RESEARCH FOUNDATION PRIZE AWARDED

The \$500 research prize of the Canadian Dental Research Foundation was awarded to F. J. Hechter of Manitoba during the Canadian Dental Association's 1976 National Convention in Edmonton. Dr. Hechter won his award for a research article on the "Symmetry and Dental Arch Form of Orthodontically Treated Patients". His research was carried out at the Faculty of Dentistry, University of Manitoba.

The Foundation's institutional trophy was awarded to the University of Manitoba, Orthodontic Department, because the prize-winning research was performed there. Dr. J. W. Neilson, Dean of the University's Faculty of Dentistry accepted the trophy, which is a brass-leafed book mounted on an attractive wooden stand.



Dr. H. Lindsay Mussells, Immediate Past President of the Canadian Dental Association, presents the Canadian Dental Research Foundation Award to Dr. F. J. Hechter of Manitoba.



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Dr. Stewart A. "Sandy" MacGregor of Toronto accepts congratulations and the CDA Honorary Membership Certificate from Dr. Lindsay Mussells.

CDA AWARDS HONORARY MEMBERSHIP

Stewart A. "Sandy" MacGregor of Toronto has been named an Honorary Member of the Canadian Dental Association in recognition of his outstanding contribution to the profession of dentistry. This honor, the highest bestowed by the Association, was conferred at the CDA National Convention in Edmonton during the Installation Luncheon.

Dr. MacGregor's contributions to the fields of dentistry and public health are so numerous and varied it would be impossible to itemize them all. We can only touch on some of the highlights of his distinguished career.

Born in Pakenham, Ontario, he graduated from the University of Toronto's Faculty of Dentistry in 1931. He then entered general practice in Toronto and soon restricted his practice to pedodontics.

Dr. MacGregor organized and developed the Department of Pedodontics at University of Toronto in 1943 and served as Professor and Head of this department for 24 years. In 1972 he was made Professor Emeritus of the

University's Faculty of Dentistry. During his university career he was a regular lecturer to the Faculty of Medicine, the School of Nursing and the School of Hygiene.

He served, voluntarily, as Chairman of the Dental Committee of the Junior Red Cross and as a member of the Executive of the Ontario Division of the Canadian Red Cross for 16 years. During this period, the Red Cross spent close to \$500,000 on dental projects. He was instrumental in equipping three Mobile Units to provide dental services to children in remote areas of Ontario. In addition, for five years, he supervised a Red Cross Dental Health project in a remote area of Newfoundland.

He secured funds from the Red Cross to establish a Chair of Dental Public Health at the University of Toronto's Faculty of Dentistry, an orthodontic treatment service for indigent children with dento-facial deformities, a dental department in the Protestant Children's Aid Society and a department of dentistry in the Hospital for Sick Children.

Dr. MacGregor served for many

years as Chief of Dental Services for the Hospital for Sick Children where he was also a member of the medical advisory board. He is presently the honorary consultant to the Hospital, as well as to the Crippled Children's Centre. In addition, he was instrumental in establishing a dental clinic at the Scarborough General Hospital to serve handicapped children too old for the Hospital for Sick Children and the Crippled Children's Centre.

Dr. MacGregor has served organized dentistry in many capacities. He founded and became the first president of the Canadian Society of Dentistry for Children. He is a member and past president of the North Toronto Dental Association and is a past president of the Academy of Dentistry. He was chairman of the Ontario Dental Association's Dental Public Health Committee in 1945-46 and was director of the American Academy of Pedodontics from 1947 to 1949. Also in 1949 he received his Fellowship in the International College of Dentists.

In 1969, Dr. MacGregor was made chairman of the Ontario Dental Association's Ontario Science Centre Committee and was responsible for raising \$80,000 for the dental exhibit in the Science Centre.

An internationally renowned author and lecturer, Dr. MacGregor has been awarded an honorary life membership by many professional organizations, including: the Canadian Red Cross; the Ontario Dental Association; the Milwaukee Dental Forum; the Canadian Society of Dentistry for Children; the Academy of Dentistry of Toronto; and, now, the Canadian Dental Association.

Along with his active participation in so many dental organizations throughout the years, Dr. MacGregor has also been active in a number of organizations in the health care field which are dedicated to serving handicapped children.

A major highlight of his career came in 1967 when Dr. Sandy MacGregor was awarded the Centennial Medal "in recognition of valuable service to the nation . . . as a pioneer of Dentistry for Children in Canada."

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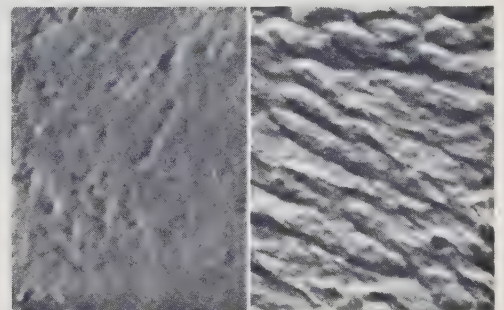
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Benoit Levesque of Laval University accepts his award from Alan J. Davis, Vice President, Public Relations, Dentsply International.



Top honors were also awarded to Brian A. J. Markham of the University of Western Ontario for his clinic.

CANADIAN STUDENT TABLE CLINIC PROGRAM

The sixth Canadian Student Table Clinic Program was held in conjunction with the Canadian Dental Association's 1976 National Convention, September 12-15 in Edmonton, Alberta. The Program was sponsored by Dentsply Canada, Ltd., through a special grant made to the Canadian Fund for Dental Education.

This year's program for Canadian students marked the sixth consecutive year that the CDA's Council on Education has conducted the clinics and nine Canadian dental schools were represented in the program.

Students received an expense paid trip to Edmonton to present their table clinics after placing first in their school's Spring Table Clinic Program. In those schools without such a program, the Dean of the dental school was invited to select an outstanding student clinician to participate in the annual Program.

Under the definition established by the CDA Council on Education, a table clinic is a table top demonstration of a technique or a procedure concerned with some phase of research, diagnosis or treatment as related to the profession of dentistry.

Benoit Levesque of Laval University and Brian A. J. Markham of the University of Western Ontario were the two top prize winners in the program. Mr. Levesque's clinic was titled "Grefte libre et tissue mou" and Mr. Markham's presentation was "The indications and contraindications of indirect pulp capping." In addition, Claude LaMarche of the University of Montreal earned a special mention for outstanding research for his clinic titled "Dentition: An indice of physiological maturity."

All nine students presented their table clinics on Sunday afternoon in a closed viewing session for the judges held at the Edmonton Plaza Hotel. A reception and dinner honoring participating student clinicians was hosted that evening by Mr. Alan J. Davis, Vice President, Public Relations, Dentsply International, representing the sponsors. The dinner was held at the Chateau Lacombe and was attended by approximately 60 persons including student clinicians, Deans, and faculty advisors of Canadian dental schools and special guests representing the dental profession and dental education.

Honored guests at the head table in-

cluded Dr. and Mrs. H. Lindsay Musells, Immediate Past President of the Canadian Dental Association; Dr. and Mrs. Michael J. Crompton, President of the Canadian Dental Association; Mr. Lloyd Stevenson, Executive Director of the Canadian Dental Association; Dr. and Mrs. Jack Neilson, Chairman of the Canadian Fund for Dental Education and Dean of the University of Manitoba; Dr. Maynard K. Hine, President of the Fédération Dentaire Internationale; Dr. and Mrs. Irving Guber, First Vice President of the American Dental Association; Mr. Stanley O. Tebbutt, Vice Chairman of the Canadian Fund for Dental Education and Mr. Alex Currie, Trustee of the Canadian Fund for Dental Education.

The judges for this year's program were: Dr. Armand Fortier, Dr. M. A. Kamienski and Dr. H. R. MacLean.

Following the announcement of the winning clinicians at the official opening ceremonies of the Canadian Dental Association Convention on Sunday evening, all nine students returned to the Edmonton Plaza Hotel on Monday to re-present their clinics for the benefit of the general membership.

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By Ray E. Stewart, D.M.D., M.S. and Gerald H. Prescott, D.M.D., M.S.; with 15 contributors. December, 1976. Approx. 688 pages, 7" x 10", 643 illustrations. About \$47.50.

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By Arthur J. Nowak, D.M.D., M.A. December, 1976. Approx. 464 pages, 7" x 10", 182 illustrations. About \$29.50.

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A New Book! **COMMUNICATION IN THE DENTAL OFFICE: A Programmed Manual for the Dental Professional.**

By Robert E. Froelich, M.D., F.A.P.A.; F. Marian Bishop, Ph.D., M.S.P.H.; and Samuel F. Dworkin, D.D.S., Ph.D.; with an introduction by Robert G. Hansen, D.D.S., M.P.H. March, 1976. 152 pages plus FM I-VIII, 6¾" x 9¾", 30 illustrations. Price, \$7.30.

A New Book! **ESSENTIALS OF CLINICAL DENTAL ASSISTING.**

By Joseph E. Chasteen, D.D.S. November, 1975. 312 pages plus FM I-XII, 8" x 10", 542 illustrations. Price, \$15.25.

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Dr. Murray Cornish, National Conventions Committee Chairman, enjoys a light moment during the 1976 CDA Convention.

Dr. H. Lindsay Mussells, Immediate Past President, stops to chat with Dr. S. Silver of Montreal (left) and Lloyd Stevenson, CDA Executive Director.

EDMONTON

A GREAT CONVENTION TOWN

Dentists, specialists, auxiliaries, guests, wives and exhibitors all seemed to agree that Edmonton is a great place to hold a national convention. Clinicians at scientific sessions spoke to enthusiastic audiences. Table clinic displays drew capacity crowds. Exhibitor space was sold out and attracted steady business throughout the convention.

Platform guests and officials attending the opening ceremonies on Sunday, September 12.



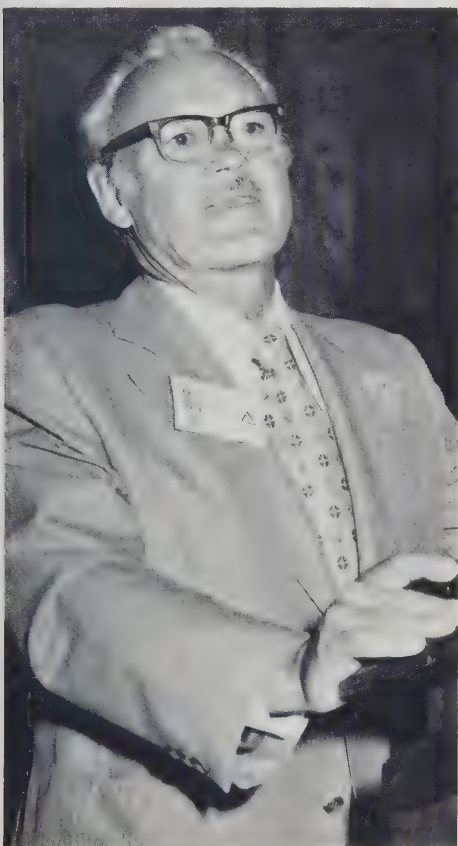


A constant buzz of activity was evident around the registration desk throughout the convention.



Well-planned exhibits were busy with the continuous traffic of visiting dentists and auxiliaries.

Dr. William G. McIntosh was awarded a special Executive Director Plaque in honor of his years of service to CDA.



M. E. "Bud" Bower was presented with a Distinguished Service Award during the Installation Luncheon.



Dr. S. M. Claman congratulates Dr. M. J. Cipton, newly installed president of the Association.

The Voss Family Singers provided top-quality entertainment during convention festivities.

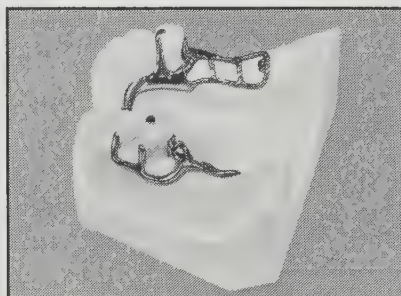
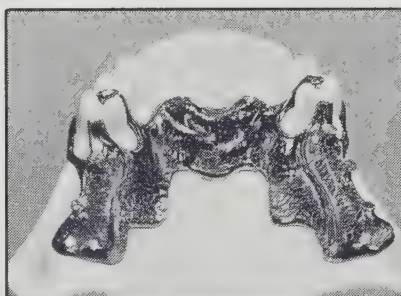




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THE DENTIST'S ROLE IN HYPERTENSION DETECTION

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The World Health Organization considers a systolic blood pressure in excess of 160 mm Hg and a diastolic blood pressure in excess of 95 mm Hg as higher than normal. About 12 per cent of the adult population of Canada, who have these levels all day long, are said to have high blood pressure or hypertension.^{1,2} Untreated hypertensives can expect to die 10 to 30 years earlier than those with pressures below this level.³ Indeed, they are two to three times more likely to die each year compared to those with lower pressures.³ Treatment which lowers the pressure below the 160 and 95 mm Hg levels can prevent the cardiovascular complications of hypertension.^{4,5} If hypertension were brought under control in our population, heart attacks in middle age would be reduced by 21 per cent, strokes by 37 per cent, heart failure by 75 per cent, kidney failure by 20 per cent, and deaths by 25 per cent.⁶ The cost of these complications in terms of loss of life, loss of loved ones, financial loss, and the pain and suffering of those affected is staggering. But although up to one-half of Canadian hypertensives are aware of their condition, only half of these people receive treatment, and of the half on treatment only half are under control.^{1,2} This means that only one-eighth of all hypertensives are under control.

Role of the dentist

By taking the blood pressure readings in all of his patients the dentist can play an important role in control of hypertension.⁷⁻¹² He should bear in mind the following considerations:

Detection of untreated hypertension — Many people who never visit a physician regularly visit a dentist.⁷ Ten to 15 per cent of people who visit a dentist have uncontrolled hypertension.⁷ In most cases, the blood pressure ratings obtained in the dentist's office are the same as those obtained in the physician's office.⁷⁻¹²

If a dentist therefore informs the patient's physician about a significant pressure elevation and if the physician asks to see the patient, a high percentage of the dentist's patients referred to the physician will receive treatment.⁷⁻¹¹

Instruction and motivation — A dentist can explain to his patient what high blood pressure is and provide him with pamphlets on the subject. These are available from some pharmaceutical firms and from the Heart and Kidney Foundation. To those who are already under treatment the dentist can stress the importance of persevering with therapy.

Side effects of the medication — A dentist may detect side effects of the medication of which the physician is not aware. The physician can then be alerted and the patient referred to him for appropriate treatment.

Non-adherence to medication — The dentist may find patients with elevated blood pressure who have either stopped their medication or reduced the dose on their own. These people can be referred to their physician and the dentist can again stress the importance of adhering to the prescribed treatment.

Complications from dental procedures — A vascular catastrophe such as a cerebral haemorrhage, cerebral thrombosis, heart attack or heart failure, could be precipitated in the uncontrolled hypertensive either because the emotional stress of the dental procedure or the use of vasopressors during tissue retraction raises the blood pressure too high. If the patient is found to be hypertensive, the dental procedure should be delayed.

Complications due to antihypertensive agents — Most antihypertensive agents predispose to orthostatic hypotension; as a consequence the patient may faint when rising from a reclining position in the dental chair unless he is warned to do so slowly.

Sedatives, such as barbiturates may potentiate the action of the antihypertensive agents and cause a marked fall in blood pressure. The dose of sedatives should be reduced for these patients or alternate approaches taken.

Diuretics can affect intraoral tissue fluid balance, thereby altering the accuracy of impressions and success of dentures. The dentist may therefore wish to wait until the medication is stabilized before fitting dentures.

When to measure and when to refer

Almost no physician treats systolic pressures of less than 160 mm Hg or diastolic pressures of less than 95 mm Hg. To determine whether a higher reading is significant, the dentist, his assistant or his secretary should telephone the physician and ask him. If this is done, a spirit of understanding and co-operation will evolve between the two professions. In addition, a patient is spared the anxiety and inconvenience of rushing to his physician only to be told that his pressure is normal for his age.

Blood pressure readings may be taken while patients are in the dentist's reception room or in the operating room. If a reading is elevated, a second reading should be taken five minutes later. If this one is also elevated, the physician should be contacted to find out whether he wishes to see the patient.

What patients should know about hypertension

What is "high" blood pressure? — High blood pressure is a condition in which the pressure of blood against the blood vessel wall is increased above normal. The best analogy is that of a garden hose. If we reduce the size of the nozzle opening, the water pressure in the hose rises. In the body, the small blood vessels (arterioles) go into spasm and act like the tight nozzle, raising the blood pressure behind it. Everybody's blood pressure goes up when he is nervous or excited. In people with "high" blood pressure, however, the blood pressure is higher than normal all the time, even when they are relaxed.

Why is high blood pressure undesirable? — High blood pressure can cause blood vessels to burst, just as would high water pressure in a garden hose. If this happens in the brain, part of the brain may suffer damage and die (this is called a stroke). High blood pressure also causes cracks in the blood vessels. Cholesterol and other fats accumulate in these cracks (this is what we mean by hardening of the arteries). If enough fats accumulate, they will block the blood vessels. Since these blood vessels carry oxygen and food to the cells of the body, the areas fed by these blocked vessels will die from lack of oxygen and nourishment. If this blockage happens in the brain, part of the brain will die and a stroke occurs. If it happens in the heart, a heart attack occurs. If it happens in the kidneys, kidney failure results. If it happens in the blood vessels of the legs, gangrene of the feet sets in. If it happens in the eye, the person may go blind.

What causes high blood pressure? — In most cases, we do not actually know the cause. We know that those whose mother and father have it, are more likely to have it than others — so heredity plays a part. The obese are more likely to have it than the thin. The older one is, the more likely one is to have it. Blacks are twice as likely to have it as whites. Once a person has it, consuming a lot of salt will make his pressure rise even higher; yet many people who do not have high blood pressure can use all the salt they like and still not get high blood pressure. Nervous tension may make it worse, but does not cause it. Regular rhythmic exercise, such as jogging, tends to lower the blood pressure.

Occasionally we do find a cause, such as a damaged kidney or adrenal gland. In such cases, these organs produce materials that cause the blood pressure to rise. Women on birth control pills and women after the menopause who are on female hormone pills occasionally develop high blood pressure due to these pills. Removal of the pills returns the blood pressure to normal in a few months.

What are the symptoms of high blood pressure? — In most

cases, there are absolutely no symptoms. You may be feeling perfectly well, and yet you may have it. Occasionally, people with high blood pressure get headaches or nosebleeds from it, but this is rarely the case. In most cases, there are absolutely no symptoms until catastrophe strikes. Tiredness or nervousness are not symptoms of high blood pressure.

What can be done about it? — Sometimes merely losing weight, reducing emotional tensions, exercising, and reducing salt intake will return pressure to normal. These programs should be carried out under physician's supervision. In most cases, pills will be required to keep the blood pressure under control. The pills act by relieving the spasm in the small blood vessels (just as one would do by opening the nozzle wide on the garden hose). These pills include diuretics (water pills), Reserpine, hydralazine (Apresoline), methyldopa (Aldomet), clonidine (Catapres) and propranolol (Inderal).

How long should treatment continue? — In most cases treatment should continue for life. Occasionally, there are patients in whom the blood pressure settles down even after treatment is stopped; but this is rarely the case.

What about the side effects of the drugs? — All drugs may cause some weakness and dizziness. In most cases, these symptoms disappear within a few weeks. If the symptoms are too troublesome, the physician may have to change the medication.

Additional recommendations

Some of the following recommendations have been adapted from a recent conference in the United States on the role of the dentist in hypertension.^{11,12}

Continuing education for dentists — Dental schools and societies, with co-operation from specialty societies, should be encouraged to offer educational programs on high blood pressure and cardiovascular disease for dentists and their auxiliaries. Attempts should be made to encourage joint programs with physicians.

Training for office staff — Dentists should assist in training their office staff to measure blood pressures, perform screening tests, and provide counselling. Dental assistants and hygienist organizations, heart associations and similar groups should be requested to assist in the development and presentation of such courses. Where possible, training should include both dentists and auxiliaries.

Dental school and dental auxiliary school responsibilities — Dental and dental auxiliary schools should be the initial focus of education about high blood pressure and its seriousness, providing training for students, requiring knowledge about and skill in use of a blood pressure cuff and stethoscope, and offering physical evaluation courses developed in co-operation with appropriate departments in medical schools.

Dental society support for local programs — Dental societies should be encouraged to sponsor programs on hypertension, with attention to dissemination of educational

Continued on page 553

PREVENTION OF ORAL INFECTIONS IN PATIENTS RECEIVING CANCER THERAPY

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During the past decade increasing numbers of patients with malignant tumours have been surviving as a result of advances in therapy. As a consequence, a dentist may well be confronted with such patients during the course of routine treatment. Therapeutic measures, such as extensive radiotherapy, are, however, associated with complications, particularly infections, for which the dentist must always be on the lookout. Not infrequently, therefore, a patient may present with an infection of the oral mucosa and it is only subsequently realized that he is undergoing therapy for malignancy. Successful management of the cancer patient, therefore, not only includes an understanding of appropriate therapy for the disease but also appropriate therapy for infectious complications. Furthermore, as the cancer patient is susceptible to a wide variety of infections, the dentist may be able to play a vital role in their prevention.

Recent studies have emphasized the critical role of infection as the proximate cause of death in cancer patients. For example, 70 per cent of patients with acute leukaemia die of infectious complications,¹ with the most common types of fatal infections being pneumonia and septicaemia. Infections are also the immediate cause of death in about half the patients with lymphoma and solid tumours² and in a study of chronic lymphocytic leukaemia, 60 per cent of hospital admissions were due to infectious complications.³ Thus, in patients receiving active therapy for malignancy, dental hygiene and prophylactic measures must be stringently applied to prevent infections and it is the dentist's responsibility to monitor the patient's oral health.

Many factors are responsible for the high frequency of infections and they vary with the different malignancies. Tumours that outgrow their blood supply undergo necrosis and form a suitable substrate for infection. Other tumours may obstruct drainage of the respiratory system, permitting infection to become established distal to the obstruction. These infections seldom respond to antibiotic therapy unless the obstruction can be relieved.

Neutropenia, a common side effect of cancer chemotherapy, is associated with high risk of infections and occurs frequently in patients with haemolytic malignancies and in patients receiving chemotherapy. In patients with acute leukaemia, about 50 per cent of major organ infections and 70 per cent of disseminated infections are related to neutropenia.⁴ Neutropenia is associated with 50 per cent of fatal infections in patients with malignant lymphoma but only 14 per cent of fatal infections in patients with metastatic

carcinoma.² In the mouth, acute or chronic ulceration (localized or generalized) may be associated with neutropenia. Such a condition may merely result from a general lowering of the body's defence mechanism against bacterial invasion or may be indication of a general lowering of tissue vitality and resistance to mechanical trauma.

The fatality rate from major infections varies according to the site of infection, aetiological agent and available antibiotic therapy. It is also related to fluctuations in the neutrophil count. Patients with adequate levels of circulating neutrophils may also be susceptible to infections due to impaired neutrophil function as a result of their malignancy or therapy. Inadequate neutrophil function has been described in patients with acute or chronic leukaemia and Hodgkins' disease.⁵ Deficiencies observed include inability of neutrophils to migrate to sites of inflammation, impaired phagocytosis and reduced killing of injected organisms.⁶ As a consequence, the body defence mechanisms may be severely impaired and even minor infections may lead to disastrous consequences.

Chronic lymphocytic leukaemia, lymphocytic lymphoma and multiple myeloma are malignancies often associated with impaired antibody production.⁷ The frequency of infectious complications in patients with multiple myeloma and macroglobulin anaemia has been related to their inability to respond to antigenic stimuli.⁸ Cancer chemotherapy increases the patient's susceptibility to infection because most anti-tumour agents cause neutropenia and lymphopenia. Many of these drugs inhibit the primary and secondary responses to antigenic stimuli, interfere with delayed hypersensitivity and reduce macrophage migration to sites of inflammation.⁹ Many chemotherapeutic measures also include adrenal corticosteroids which inhibit inflammation, decrease capillary permeability and decrease cellular exudation. They may interfere with diapedesis of leucocytes, cause stabilization of lysosomal membranes, inhibit antibody production and impair reticuloendothelial function.

In addition, antibiotic therapy has been incriminated as a cause of superinfection with resistant bacteria and fungae. For instance, the number of carriers of candida increases during the administration of oral antibiotics¹⁰ and this may be demonstrated by white lesions occurring on the oral mucosa. Patients with a severely impaired host defence mechanism, however, no longer die of infections caused by *Staphylococcus aureus* because effective antibiotic therapy is now available.

Types of infection

The frequency of the different infections varies according to the underlying malignancy. Pneumonia and septicaemia are the commonest, especially in patients with a haematological malignancy, and pneumonia accounts for 70 per cent of fatal infections in patients with carcinoma of the head, neck or lungs.

Pneumonia in patients with solid tumours usually results from primary or metastatic invasion of the lung or bronchial tree, with the majority of these infections arising from inhalation of the responsible organisms. Most cases with pneumonia in patients with cancer chemotherapy are caused by Gram negative bacilli, and these infections are often very serious due to the extensive necrosis and high fatality rate.¹¹

If there is an oral malignancy, then there may be superficial necrosis of the tissues overlying the malignancy and subsequent bacterial invasion. This may lead to acute or chronic ulceration of the oral mucosa in a limited region of the mouth. Alternatively, there may be more generalized non-specific ulceration resulting from a general lowering of the host's defence mechanisms.

Pneumonia is a major problem in patients with neutropenia. This may be serious, since patients with neutropenia are incapable of producing an adequate inflammatory response, with the result that pulmonary infections may spread rapidly and extensively. Due to the lack of inflammatory response, these patients may also fail to develop the characteristic signs of pneumonia until the infection is far advanced. Such patients may present very few signs and symptoms when attending for routine dental therapy in the office.

Antibiotics

There has been a rapid proliferation of new antibiotics during the past two decades, although only a few have been adequately evaluated for the treatment of infections in cancer patients. Some have limited efficacy in patients with impaired host defence mechanisms and especially in patients with neutropenia. It is therefore generally preferable to use bactericidal rather than bacteriostatic agents.

The penicillins are bactericidal and are probably the most effective antibiotics for patients with impaired host defence mechanisms. Even in patients with neutropenia, they cure the majority of infections caused by sensitive organisms. This was first recognized when methicillin was introduced for the treatment of penicillin G resistant *Staph aureus* infections. This organism was the leading cause of fatal infections before methicillin became available. However, few patients die of these infections if treated promptly with one of the anti-staphylococcal penicillins. Other penicillins used widely in cancer patients include carbenicillin and Ticarcillin. Aminoglycosides such as gentamycin may also be used for their broad spectrum activity. No single antibiotic, however, has a sufficiently broad spectrum of activity to be used alone as initial therapy for presumptive infection in cancer patients. Since these patients are susceptible to such a wide variety of organisms, regimens of carbenicillin and gentamycin have

been used to advantage. Usually, the new semi-synthetic broad spectrum penicillin Ticarcillin (3.5 gm every 4 hours) is very effective in managing oral bacterial lesions in patients receiving treatment for malignancies, as is carbenicillin (1 gm every 6 hours). However, when defence mechanisms are impaired following malignant therapy, antihistamines and adrenal corticosteroids must be on hand in order to guard against possible allergic reactions.

Fungal infections

Fungal infections are exceedingly prevalent among cancer patients. Antibiotics, adrenal cortical steroids and anti-tumour agents all enhance susceptibility to fungal infections, whereas neutropenia, impaired cellular immunity and tissue damage facilitate the establishment of fungal infections. Among fungal infections, those involving candida species are very common and may be indicative of greatly impaired host defence mechanisms. Acute fungal infections may also represent reactivation of latent fungal infections in cancer patients. Candida infection is often treated with nystatin, although this drug may be less effective than amphotericin B.¹² The latter may therefore be used in preference to nystatin when treating very advanced candidial lesions, although nystatin is usually adequate for maintaining such ulcers under control.

Viral infections

Cancer patients are also susceptible to acute viral infections. Occasionally these may cause fulminating infections leading to death or more often predisposing to serious bacterial super-infection. The most serious viral infections in cancer patients are caused by the herpes group with which the dentist should be familiar. Characteristically, these viruses infect the young, resulting in life-long immunity which may be associated with latent infection. Increased prevalence of infection due to *H simplex* is common¹³ in patients receiving chemotherapy or radiotherapy. Greater susceptibility to infections from *H zoster* has also been reported.¹⁴

The most important host defences against viral infections are probably interferon and macrophages.¹⁵ Antibodies are more likely to prevent dissemination and recurrence of infection, but they play no major role in eradicating the initial infection. Interferon is produced by infected epithelial cells, fibroblasts, macrophages and lymphocytes. It prevents viral invasion of cells apparently by interfering with the synthesis of viral RNA. Macrophages are prominent in inflammatory exudates and may play an important role in the eradication of viral infections. Lymphocytes may also contribute by producing migration inhibition factor, a substance which attracts macrophages to sites of infection, interferon and lymphotoxin which destroys infected lymphocytes.

Patients with lymphoma, and especially Hodgkin's disease, are most susceptible to viral infections. This susceptibility is related to deficiencies in cell mediated immunity. Both anti-tumour and adrenal cortical steroids enhance susceptibility to numerous viruses and transform mild infections into fatal disease.

Conclusion

Thanks to advances in therapy, the number of patients surviving malignancies is continually increasing but there is a great danger that such patients may subsequently succumb to infections. Dentists therefore have a crucial role in maintaining a clean and healthy mouth that remains free from infection. If these infections were prevented, many cancer patients could maintain a normal healthy life for a prolonged period of time now that it is possible to inhibit the growth and development of malignant tumours.

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Hypertension detection . . . *Continued from page 550*

material to and screening of society members. Societies should establish committees to plan, develop, and support local programs.

Co-ordination and planning with other key groups — Local committees with representation from key groups, such as heart associations, medical and dental societies, and health departments, should be established. Organizations involved in high blood pressure programs should be encouraged to assist dental efforts (for example, a heart association can assist with education and training, health departments with referral procedures and data collection). Dental societies should co-ordinate their efforts with those of other key groups.

Organizing and conducting a referral program — Dentists and physicians should communicate more directly at local and individual levels. Local dental and medical societies should form joint committees for conducting screening and referral programs for hypertension. Physicians should be educated about the potential role of dentistry in hypertension screening and referral.

Dissemination of information — The Canadian Dental Association should gather and disseminate information about high blood pressure. Guidelines should be developed by appropriate agencies to assist dentists in taking blood pressure readings. It is essential that relevant abstracts and medical papers concerning hypertension be reprinted in dental literature since few dentists read medical literature.

Dental journals and newspapers should solicit articles on high blood pressure and cardiovascular risk factor screening.

Dental editors should be encouraged to assume a leadership role in high blood pressure education.

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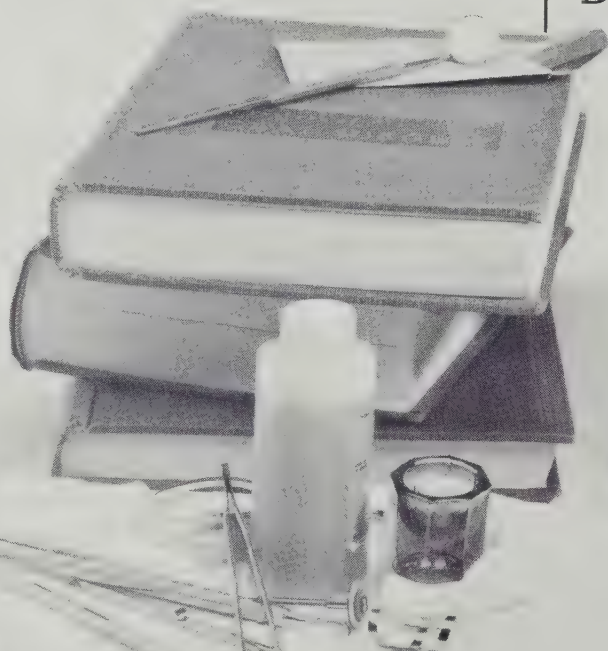
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UTILIZATION OF AN ORAL PATHOLOGY DIAGNOSTIC SERVICE BY DENTISTS

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Many lesions and diseases of the mouth, like those occurring in other parts of the body, can be diagnosed from their clinical and radiographic appearance and history. Other conditions, however, require further information in order to make a definitive diagnosis. In many of these cases, the information can only be obtained from a biopsy. Excisional biopsy is usually employed when the clinician is reasonably sure of the diagnosis and when the lesion is small. Incisional biopsy is used for large lesions and where the clinical diagnosis, is confirmed by the pathological examination, would necessitate major surgery or some analogous therapy.

In Ontario, specialized oral pathology diagnostic services for outpatients are provided by the dental schools of the Universities of Toronto and Western Ontario, supported in part by the Ontario Cancer Treatment and Research Foundation. All dentists and physicians may submit specimens to either of these services which are both staffed by certified oral pathologists. The University of Toronto service has been in existence for over 40 years, and that of the University of Western Ontario since 1968. General pathology diagnostic services are available in all active treatment hospitals throughout the province for inpatients. At the University of Toronto the use of the diagnostic services has increased steadily over the years, but it has long been apparent that only a proportion of Ontario dentists make use of it.

Several surveys have been made of the variety and frequency of diseases and lesions diagnosed by an oral pathology service,^{1,2} but none have so far been reported about the dentists submitting these specimens. The objective of the present study therefore was to attempt to categorize those dentists who made use of the service.

Materials and methods

The pathology laboratory at the Faculty of Dentistry, University of Toronto, is staffed by three registered oral pathologists who examine and report on the specimens submitted. These reports are then sent to the respective dentist within one day of initial receipt of the specimen unless decalcification or some other time consuming procedure is required. The diagnoses and slides produced are then recorded and catalogued as required by law.

From this collection, 1,034 consecutive specimens received by the service over a period of 8 months, November

1974 to June 1975, were categorized into seven groups as follows: (1) practitioner submitting specimen, (2) year of registration, (3) specialty, (4) municipality of practice, (5) county, (6) dentist: population ratio, and (7) disease classification.

The sources of this information were as follows:

The practitioner's name was obtained from the report and then designated by a number as listed in the Royal College of Dental Surgeons of Ontario membership file. Recent graduates not on the membership list received a continuing number.

The year of registration was obtained from the Royal College of Dental Surgeons of Ontario membership list.

The Royal College of Dental Surgeons of Ontario membership list was consulted as to specialty, and the eight registered specialties were designated by a number.

The municipality of practice was obtained from the biopsy request form and coded by size of community (<1,000; 1,000-5,000; 5,000-10,000; 10,000-25,000; 25,000-100,000; 100,000-200,000; 200,000-500,000; >500,000).

The county of origin was identified from a list provided by the Department of Community Dentistry of the Faculty.

The dentist: population ratio was also obtained from the Community Dentistry Department for each municipality in the province.

The diseases represented in the 1,034 specimens were coded under broad categories of the types of disease.

The numerical information derived from each specimen was then transferred to a computer card, and the data analyzed by computer for the following correlations:

1. The number of specimens received in relation to the specialty of the practitioner.
2. The number of specimens received in relation to the year of registration.
3. The number of specimens received in relation to the size of the community in which the dentist practised.
4. The number of specimens received in relation to the dentist: population ratio of the area in which the dentists practised.
5. The number of specimens submitted in relation to a disease classification.³

Results

Table 1 shows the total number of specimens submitted and the distribution among specialties. Figures 1-3 indicate the numbers of specimens submitted by dentists per year of registration per specialty, the percentage being those dentists submitting specimens out of the total number of dentists registered for each period (for example, 7 per cent of the general practitioners who were registered between 1960-1964 submitted 49 specimens). Similar graphs were constructed for specimens from oral pathologists and endodontists but the numbers of specialists and the spread of their registration dates were too small for the figures to be illuminating.

The information derived from the correlation between the total number of specimens submitted and the community size of the respective practitioner is shown in Table 2. This information was only calculated for general practitioners as no specialists were found to practise in communities of less than 10,000 people.

The total numbers of specimens that were submitted correlated to the dentist: population ratio can be seen in Table 3.

Table 4 shows the numbers of specimens that were received categorized according to classification of disease. Although our study was not designed specifically to determine this correlation, it was of some interest to note the numbers of disease categories under investigation.

Discussion

Table 1 shows that general practitioners submitted more specimens than any of the specialties. This was not unexpected as general practitioners comprise 91 per cent of the entire dental population. However, only 8 per cent of all general practitioners submitted tissue. This contrasted with the specialties where, for example, the oral surgeons submitting specimens made up approximately 59 per cent of the total oral surgeon population and similar results occurred among the periodontists, endodontists and oral pathologists. Probably the small percentage of general practitioners using the diagnostic service available is due in part to a large number of referrals to specialists for investigation of lesions initially seen by general practitioners.

However, some other factors are pertinent. Over one-third of the dentists practising in Ontario have hospital appointments, and thus an unknown number of specimens were probably submitted to local hospital pathologists. However 85 specimens were submitted to the University of Toronto service from the dental departments of several Ontario hospitals. In most of these cases, presumably, the submitting dentist wanted the specimen to be reported by an oral rather than a general pathologist. In a few cases the specimens were submitted as the dentist concerned thought that they might be of teaching value, and the diagnosis was not in question. These 85 cases are included in the present series. During the same period, 19 cases were submitted to the University of Toronto oral pathology service or to an individual pathologist for a consulting opinion, usually by a general pathologist. The latter group have not been included in the present series.

Total number of specimens received between November 1974 and June 1975, categorized by specialty of the submitting practitioners

Table 1

General practice	492
Oral Surgery	329
Periodontics	103
Endodontics	52
Oral pathology	49
Paedodontics	9
Total	1,034

Specimens received from general practitioners categorized by size of the community in which the dentist practised

Table 2

Community size	Specimens received	Submitting dentists	
		N	% of total dentists in the community
< 1,000	21	10	23
1,000-5,000	39	22	12
5,000-10,000	15	14	11
10,000-25,000	70	45	20
25,000-100,000	30	14	3
100,000-200,000	18	14	6
200,000-500,000	73	46	10
> 500,000	226	129	12
Total	492	294	97

Specimens received from general practitioners categorized by dentist: population ratio of the area in which the dentist practised

Table 3

Dentist: population ratio	Specimens received	% of general practitioners using service
1:100 - 1:500	10	25
1:500 - 1:1,000	25	13
1:1,000 - 1:1,500	61	12
1:1,500 - 1:2,000*	266	8
1:2,000 - 1:2,500	77	8
1:2,500 - 1:3,000	23	7
1:3,000 - 1:3,500	4	5
1:3,500 - 1:4,000	15	8
1:4,000 - 1:4,500	0	0
> 1:4,500	11	9

* Includes Metropolitan Toronto

Classification of disease	Specialty						Totals
	General practice	Oral surgery	Periodontics	Endodontics	Paedodontics	Oral pathology	
Normal tissue	11	17	7	0	2	3	40
Developmental disturbances	14	3	8	0	0	0	25
Inflammatory conditions	282	141	55	30	6	26	540
Pathology of hard tissues	2	1	0	0	0	2	5
Cysts	83	79	2	21	0	7	192
Odontogenic tumours	2	6	0	0	0	0	8
Dermatological diseases	9	6	8	0	0	2	25
Non-neoplastic diseases of bone, nerve, muscle	0	8	3	0	0	0	11
Salivary gland disturbances	20	23	1	0	0	1	45
Benign and malignant epithelial tumours	61	32	15	0	1	8	117
Benign and malignant mesenchymal tumours	5	10	1	0	0	0	16
Metabolic diseases	0	1	0	0	0	0	1
No diagnosis possible*	3	2	3	1	0	0	9
Totals	492	329	103	53	9	49	1034

*Because specimens were inadequately fixed, too small or taken from the wrong area

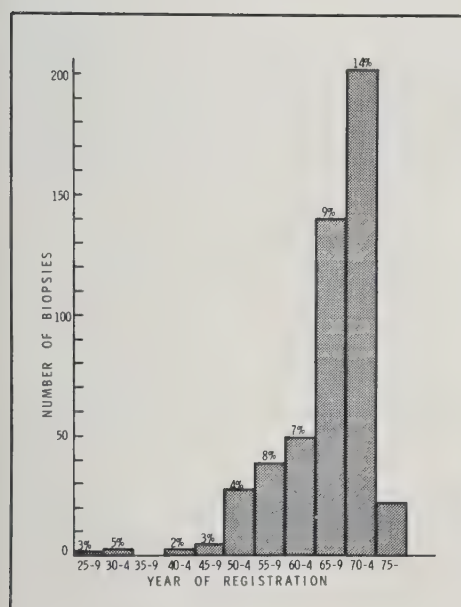


Fig 1 Specimens received from general practitioners categorized by period of registration of the submitting dentists. The percentages of dentists using the service out of the total number of dentists registered for each period are also shown.

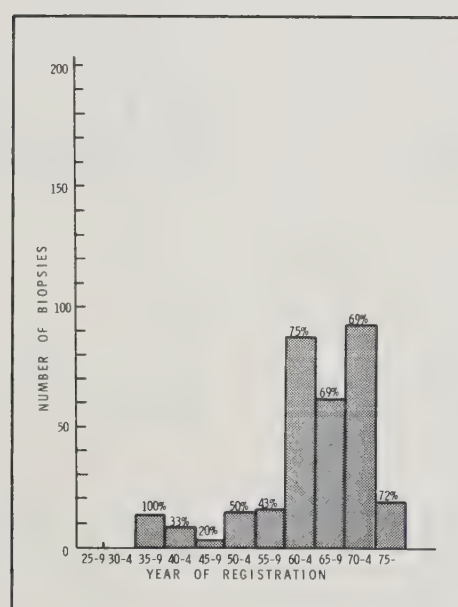


Fig 2 Specimens received from oral surgeons categorized by year of first registration in that specialty. The percentages of oral surgeons using the service out of all oral surgeons for each registration period are also shown.

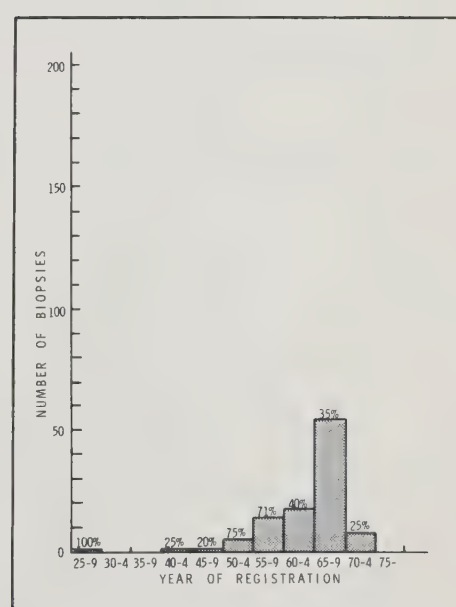


Fig 3 Specimens received from periodontists categorized by year of first registration in that specialty. The percentages of periodontists using the service out of all periodontists for each registration period are also shown.

Another major factor to be considered in the overall assessment is that during the same period, November 1974 to June 1975, 712 specimens were accessioned to the oral pathology service of the University of Western Ontario.

Nevertheless, taking all these considerations into account, the percentage of dentists in Ontario who submit tissue for pathological examination remains surprisingly low. During an 8 month period such as that covered in this report, it is difficult to conceive of a dentist in a general practice who did not have at least one case that should have had tissue investigated pathologically. If the assumption is made that all 1,034 cases in this series had been seen initially by a general practitioner, then still less than a third of the total potential number was submitted to our laboratory, and approximately half if the University of Western Ontario numbers are included.

Perhaps the most encouraging results are those shown in Figures 1-5. The percentages of specialists who submitted specimens during the period studied are high, as was expected. We presume that the majority of specialists who did not submit tissue to this service are in the habit of sending it elsewhere. No trend was discernible between specialists registered at different times. By contrast, a marked trend can be seen among the groups of general practitioners by quinquennium of registration (Fig. 1). Less than 3 per cent of dentists registered prior to 1950 submitted tissue, while 14 per cent of dentists registered after 1970 did so. We believe this almost six-fold increase to be the result of the increasing emphasis

placed on the biological aspects of dentistry in undergraduate curricula, increased opportunities for and participation in continuing education in oral pathology, and the resulting better knowledge and greater interest in these aspects of dental practice.

The results obtained from the population and community size correlations to dentists using the services were not unexpected. However, the larger percentage of general practitioners sending in specimens from smaller communities was also encouraging. A chi-square test applied to these figures confirms that the number of dentists practising in communities of less than 25,000 who submit specimens is significantly higher than in larger communities ($p < .005$). This indication of clinical acumen and familiarity with sound investigative practices is of importance to such communities, considering the relative paucity of specialists in remote areas. All the specialists who submitted tissue practised in a large community or immediately adjacent to one.

In this study there are too many variables and uncontrolled conditions for precise conclusions to be drawn. However the trends found do permit some tentative comments to be made. It would seem that the more recently qualified dentists in Ontario are better equipped to investigate and undertake treatment for a wider variety of conditions, as indicated by the great increase in the request for pathological examination and diagnosis. It is to be hoped that with continuing or even greater educational emphasis, this trend will become more obvious in the future.

Summary

The use by dentists of the oral pathology diagnostic service of the Faculty of Dentistry, University of Toronto, was analysed over an 8 month period when 1,034 specimens were submitted. Markedly increased usage by the more recently qualified dentists was observed, both in the total number of specimens submitted and in the percentage of dentists who submitted them. A higher percentage of dentists practising in small communities submitted specimens. The percentage of specialists, other than orthodontists, using the service was much higher than that for general practitioners.

Dr. Organ was a Medical Research Council of Canada summer student when this study was concluded.

Dr. Main is professor of oral pathology, Faculty of Dentistry, University of Toronto, 124 Edward St., Toronto M5G 1G6.

We are grateful to Drs. D. G. Gardner and G. P. Wysocki of the University of Western Ontario for providing us with the figures from their diagnostic service.

- 1 Thompson, C.C. A report of lesions diagnosed in the University of Oregon Dental School Biopsy Service 1973-1974. *J Oregon Dental Association* 43:6, 1974.
- 2 Cataldo, E. and Giunta, J. L. Analysis of a diagnostic oral biopsy service. *J Massachusetts Dental Society* 19: 238, 1970.
- 3 Fischman, S. L. Personal communication, 1969.

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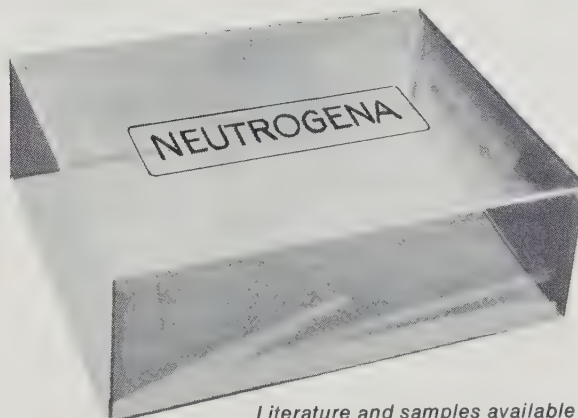
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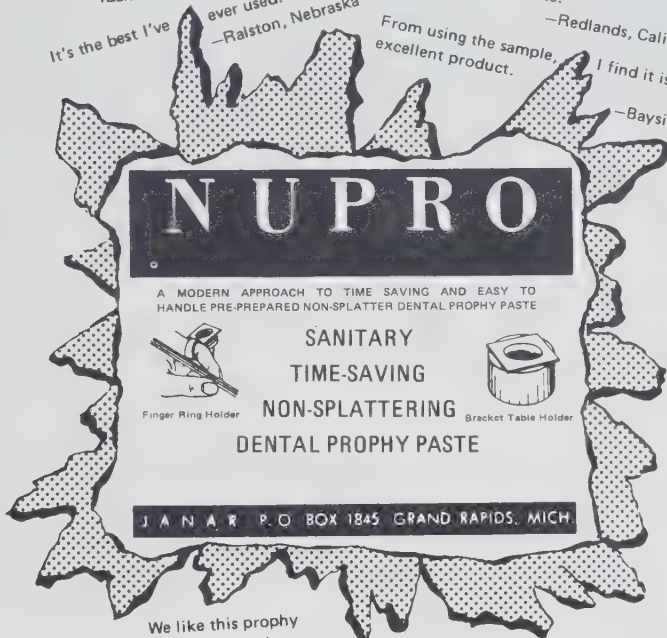
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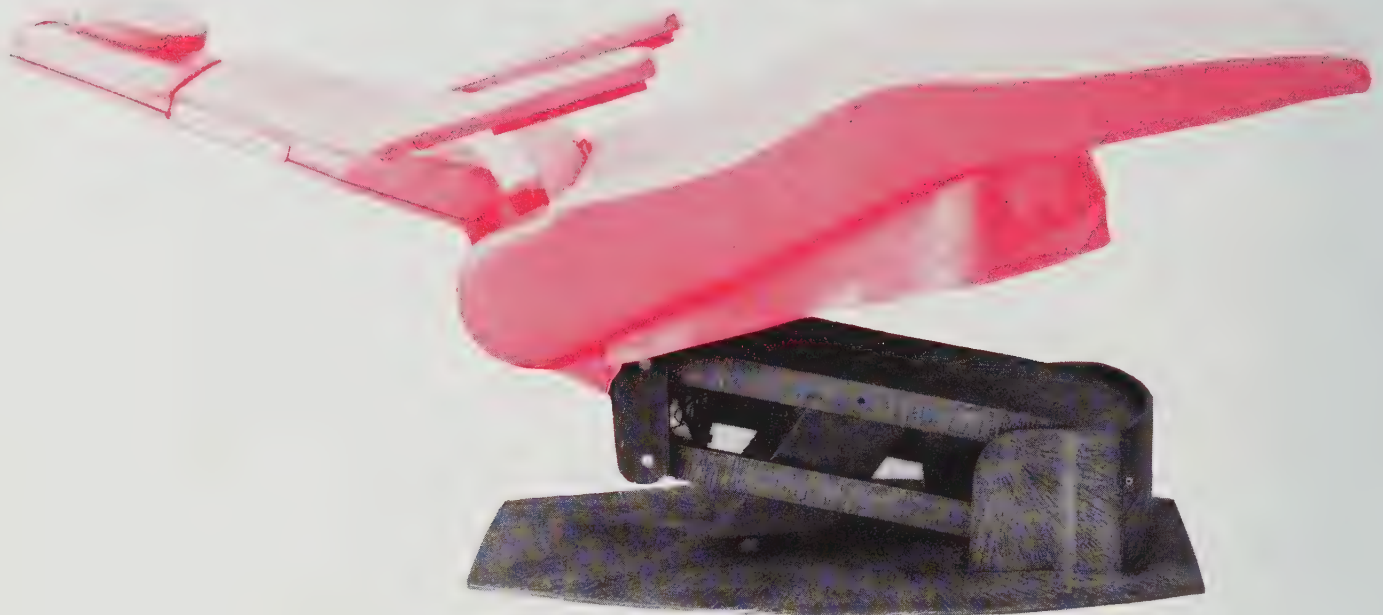
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JOURNAL

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de l'Association Dentaire Canadienne
Dec 1976/Volume 42/No 12

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Editorial

Une dimension nouvelle à la profession	572
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Regular Features

Announcements	566
Letters to the editor	568
Dentistry in the news	574
Deaths	578
Les actualités dentaires	582

Articles

The study club as a means of continuing education — Jones	589
Postgraduate training and graduate education in dentistry — Melcher	591
Comments on Dr. Melcher's article — Sperber, Lussier and Jordan	596

Annual Index, Volume 42	599
-------------------------	-----

Index annuel, Volume 42	605
-------------------------	-----

Classified advertising	607
------------------------	-----

Advertisers' index	610
--------------------	-----

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Canadian Dental Association,
1977, Toronto, Oct. 22-28.

Fédération Dentaire Internationale,
1977, Toronto, Oct. 22-28.

Canadian Meetings

Health Care Evaluation Seminar, University of Calgary, Division of Community Health Science, Feb. 6-11, 1977. Seminar will focus primarily on maternal and child health. Contact: Christina Bergland, Seminar Coordinator, Division of Community Health, University of Calgary, 2920 - 24 Ave. N.W., Calgary, Alberta T2N 1N4.

Ontario Society of Periodontists and Canadian Academy of Periodontology, combined seminar, Chelsea Inn, Toronto, May 6, 1977. Clinicians: Drs. Tony Melcher, Richard Ellen and Robert Schallhorn. Topics to include oral biologic and clinical experimental research as it relates to clinical periodontology. Contact: Dr. Stephen Richmond, (416) 491-6211 or Dr. Frank Compton, (416) 922-4223.

Ontario Dental Association, at Sheraton Centre (formally Four Seasons Sheraton), Toronto, May 8-11, 1977. Mrs. W.C. Durham, 234 St. George St., Toronto, Ont. M5R 2P2.

Les Journées Dentaires du Québec, at Queen Elizabeth Hotel, Montreal, May 16-20, 1977. Dr. R.M. Lang, 5171 Decarie Blvd., Montreal, Que. H3W 3C2.

Congress on Cleft Palate and Related Craniofacial Anomalies, at Royal York Hotel, Toronto, June 5-10, 1977. Advance registration closes December 31, 1976. Congress Secretariat, 191 College St., Toronto, Ont. M5T 1P7.

Western Canada Dental Society, at Banff Springs Hotel, Banff, Alberta.

July 3-6, 1977. Dr. D. Pedlar, Publicity Chairman, Western Canada Dental Society, 1711 - 4th St. S.W., Ste 303, Calgary, Alta. T2S 1V8.

International Meetings

International Congress for Preventive Dentistry and Oral Health, Costa del Sol at the Palacio de Congresos, Torremolinos, Spain. Initial dates set for the Congress, January 15-18, 1977 and March 5-8, 1977. Additional optional dates throughout January, February and March will be available. Sponsored by the American Society for Preventive Dentistry, 400 Shelard Plaza South, Minneapolis, Minnesota 55426.

Miam Winter Meeting, at Miami Beach, Jan. 23-26, 1977. Barbara Sims, 2 SE 13th St., Miami, Florida 33131.

Eighth Asian Pacific Dental Congress, at Manila, Philippines, Feb. 7-12, 1977. Organizing Committee, Eighth Asian Pacific Dental Congress, c/o Professional Convention Planners, P.O. Box 945, Manila.

American Academy of Occlusodontia, 21st Annual Meeting, at the Essex Inn, Chicago, Feb. 18-19, 1977. Dr. A.R. Goldman, 1500 Shermer Rd., Northbrook, Illinois 60062.

Chicago Periodontal Research Study Club, Annual Seminar, Pick-Congress Hotel, Chicago, Feb. 19, 1977. Dr. Alvin J. Fillastre of Lakeland, Florida, will speak on "Physiology of Occlusion and its Application". Registration fee: \$50.00. Contact: Dr. Samuel Goldberg, 110 South Marion St., Oak Park, Illinois 60302.

American Dental Hygienists' Association, at Boston, March 30-April 3, 1977. Mr. John Venator, 211 East Chicago Ave., Chicago, Illinois 60611.

World Congress of Oral Implantology, at Cairo, Egypt, April 6-8, 1977. Alice Turner, International College of Oral Implantologists, Suite 7000, The Chrysler Building, 405 Lexington Ave., New York, 10017.

American Association of Endodontists, at Houston, April 13-17, 1977. Mrs. Eleanor L. Baker, P.O. Box 11728, Atlanta, Georgia 30305.

California Dental Association World of Dentistry, annual scientific meeting, Anaheim, California, April 15-18, 1977. Contact: California Dental Association, P.O. Box 91258, Los Angeles, Calif. 90009.

American Academy of Oral Medicine, at Toronto, May, 1977. Mrs. Joyce Guithues, 829 Hanamore Crescent, St. Louis, 63122.

American Academy of Orthodontics for the General Practitioner, Inc., at Delavan, Wisconsin, May 23-26, 1977. Mrs. M. L. Watson, 3953 North 76th St., Milwaukee, 53222.

American Academy of Pedodontics, at Bal Harbour, Florida, May 29-June 1, 1977. Merle C. Hunter, 211 East Chicago Ave., Suite 1235, Chicago, Illinois 60611.

American Dental Association, 28th Annual Management Conference, at ADA Headquarters, Chicago, June 13-15, 1977. American Dental Association, 211 East Chicago Ave., Chicago, Ill., 60611, USA.

Third International Odontological Congress and First National and International Congress of the Odontological Services of the Armed Forces, Federal University of Rio de Janeiro, Brazil, July 15-21, 1977. Contact: Associacao Brasileira de Odontologia, Avenida 13 de Maio, 13-10 andar, conjuntos, 1001/2-5/116, Rio de Janeiro, R.J., Brazil.

Continued on page 570



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Oral pathology

Whilst the accuracy of histologic diagnosis occupies a high priority responsibility of the pathologist, the role of the dentist in the detection of suspicious lesions cannot be ignored. This particularly pertains to the diagnosis of malignancy, pre-malignancy and conditions resembling malignant lesions. The prognostic implications of the type and extent of invasion of such a lesion are obvious. Even in cases not amenable to surgery, rapidly developing chemotherapeutic or other modes of therapy vary considerably from type to type and diagnostic accuracy is essential in evaluating new therapeutic modalities. From the patient's viewpoint, incorrect diagnosis may lose him his chance of cure or place upon him an enormous burden in terms of needless radical surgery or tissue damage arising from radiotherapy. This places an enormous burden on the pathologist and the dentist who should ideally work together in order to arrive at a diagnosis.

Indeed, despite recent advances in immunology, the ultimate diagnosis of a pathological lesion still hinges upon the microscopic examination of a biopsy specimen. Moreover, there is little chance of this method of diagnosis changing in the near future. Developing pathological expertise is no easy task, and is subject to occasional errors even when working with properly fixed tissue, correctly embedded, sectioned and stained. Furthermore, pathologists may require a second opinion in order to arrive at a definitive diagnosis, although this will be precluded if the initial biopsy specimen is less than adequate.

There is, therefore, a vicious circle. On the one hand, too few oral malignancies or other pathological lesions

are identified by the dentist, and even when they are, the biopsy specimens often prove to be unsatisfactory. On the other hand, many pathological laboratories receive such limited specimens that the training of diagnostic histopathologists may well require augmentation if there is to be a future in oral pathology. Indeed, the future training of dentists in general will be jeopardized if there is no one trained to teach him oral pathology.

C. L. B. Lavelle,
The University of Manitoba,
Winnipeg, Manitoba.

Editor's note: For further information on the issue discussed by Dr. Lavelle in the above letter, the reader is referred to the article "Utilization of an oral pathology diagnostic service by dentists", written by Dr. Gordon Organ and Dr. J. H. P. Main and published in the November, 1976, issue of the Journal.

Infective endocarditis

In their excellent article on endocarditis (Journal of the Canadian Dental Association, Volume 42, October, 1976, page 483) Doctors Munro and Lazarus suggest some guidelines with which I do not feel all practitioners would agree. I hope they will not mind my taking congenial issue with them over some of these. They are set out on page 492 and I would like to comment on them seriatim.

1) A careful history-taking is recommended with specific questions aimed at eliciting a history of rheumatic fever, congenital heart defect, cardiac surgery and degenerative defects of the aortic valve. No mention is made of an important group of patients, i.e. those who

have undergone myocardial infarction where there has been perforation of the ventricular septum or rupture of chordae tendineae. These people are at risk and, therefore, it is essential that patients be questioned about a history of ischaemic heart disease and that, where this is positive, their own physician or cardiologist be consulted.

2) It is suggested that dental extraction should be avoided when possible in healthy mouths and that root canal therapy within the confines of the canal is the treatment of choice.

Dental extraction should, of course, always be avoided when possible, but I do not think root canal therapy is a safe procedure without antibiotic cover.¹ Who can be sure that it will remain "within the confines of the canal".

3) Single extractions are advocated rather than multiple extractions. Whereas I accept the evidence presented that there is a greater risk of bacteremia when multiple extractions occur, I think the patient who is to have multiple extractions is at much greater risk in having multiple single extractions, each linked to a course of antibiotics with consequent risk of production of resistant strains each time. Surely it is better to give the patient adequate coverage and perform the procedures at one time.²

4) A light scaling of a few teeth per appointment is advocated rather than a heavy scaling. Here again, if all these "light scalings" are to be associated with antibiotic cover, the same objections referred to above would obtain.

5) Local anaesthesia is preferred over general anaesthesia.

I think that most practitioners would agree that, for all patients, the local anaesthetic with its lower morbidity and mortality rates is preferable to gen-

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eral anaesthesia. This must be, therefore, even more true with cardiac patients. But, here again, if repeated extractions are to be carried out, it is often far safer to give the patient a single general anaesthetic and adequate antibiotic cover, removing the infected teeth.

6) In recommendation seven, the use of iodine as an antiseptic prior to the surgical procedure is advocated. I am sure no one would argue that iodine is a powerful agent which penetrates the tissue well, but surely its disadvantages, i.e., that it may burn the skin and can produce a very severe reaction in some patients would not make it the antiseptic of choice.

R. I. Brooke,
Professor and Chairman,
Department of Oral Medicine,
University of Western Ontario

1. Walton, J. G., Thompson, J. W. Pharmacology for the Dental Practitioner, British Dental Association, London, 1971, p.92.
2. Cawson, R. A., Spector, R. G. Clinical Pharmacology in Dentistry, Churchill Livingstone, 1975, p.33.

Forum for anti-fluoridationists?

I read with disdain and concern a letter from Phyllis Deakin entitled "American Medical Association's Pamphlet on Fluoridation" in the October issue of the CDA Journal.

As chairman of the Pembroke Citizens Committee for Fluoridation I am deeply involved in a campaign to

fluoridate our city's water supply via a referendum in conjunction with our municipal election on December 6th, 1976. (Fluoridation was narrowly defeated by 68 votes in 1974.)

I will not subject my fellow dentists to a blow by blow critique of Ms. Deakin's letter as I am sure Canadian Dentistry is well aware of the many beneficial effects derived from fluoridation.

My concern, fellow doctors, is simply this: How does this bloody piece of nonsense by Ms. Deakin find its way into our national Journal? I respectfully suggest that our Editor must be instructed by our elected board of governors to use a great deal of discretion in the future before again giving anti-fluoridationists a forum in the CDA Journal.

Kevin L. Roach,
Pembroke, Ontario

Editor's Note: The "Letters to the Editor" section of the Journal is devoted to the comments and viewpoints of our readers, even though these are not always in accord with the views and policies of the Canadian Dental Association. Ms. Deakin's comments on the news item published in the Journal were indeed controversial and indicative of the type of thinking that dentistry must confront in its continuing effort to extend the fluoridation of water supplies. However, publication of her letter is certainly no indication that the Journal intends to provide a "forum for anti-fluoridationists". We regret that Dr. Roach was offended.

Junk foods in school vending machines

I am on the Board of Directors of the American Society for Preventive Dentistry and at a recent board meeting it was decided that one of our main public-outreach objectives was to reduce the sale of sugar and sugar-related products in public schools. We do know *for sure* that sucrose is the most culprit substrate in dental caries and perhaps in time it will be definitely implicated in other medical conditions such as diabetes and atherosclerosis. Therefore such an objective, although perhaps a great undertaking, would prove to be of great benefit to those we cherish very much — our own children.

Rather than banish vending machines in schools, it was thought to be better if such sugar-containing products were replaced or substituted by more nutritious foods. This is hoped to be implemented through the Tooth-keeper Program (already in effect in some 190 schools) in the United States and, hopefully, in Canadian schools soon.

My main request of the readers of the CDA Journal is to relate to me existing programs, or proposed programs, along these same lines in Canada. This would enable me to draw off their experiences in this battle and hopefully fulfill this objective. Any help would be greatly appreciated. My address is: 2005 Portage Avenue, Winnipeg, Manitoba R3J 0K3.

Donald J. Bachinsky,
Winnipeg, Manitoba

Announcements . . .

International Association of Oral Myology, Fifth Annual Convention, Lodge of the Four Seasons, Lake Ozark, Missouri, June 18-21, 1977. Contact: Dr. John Howland, 457 Coventry Green, Suite 120, Crystal Lake, Illinois 60014.

American Dental Society of Europe, Island of Rhodes, June 27-July 1, 1977. Dr. James Molony, Secretary, 110 Harley St., London, W.I., England.

Swedish Dental Hygienists' Association, Sixth International Symposium on Dental Hygiene, at Stockholm, Sweden, June 30-July 2, 1977. Symposium theme: plaque control. Working language: English. Eve Runsten, Secretary General, Sixth International Symposium on Dental Hygiene, c/o RESO Congress Service, S-105 24 Stockholm.

International Epidemiological Association, Eighth International Scientific Meeting, at Las Croabas, Puerto Rico,

Sept. 18-23, 1977. Dr. Carlo Luis Gonzalez, Program Secretary, Universidad de Los Andes, Facultad de Medicina, Centro de Estudios de Post-Grado, Merida-Venezuela.

Dental Association of South Africa, Fifth International Scientific Congress, Stellenbosch, Republic of South Africa, Sept. 26-30, 1977. Contact: Dr. L. S. Maresky, Congress Secretary, P.O. Box 96, 7503 Parowvallei, C.P., South Africa.

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Une dimension nouvelle à la profession

Parmi les éléments qui ont contribué à donner une dimension nouvelle à la profession, la venue des auxiliaires en fut une très importante.

Les dentistes ont toujours ressenti que plusieurs tâches pouvaient être remplies par un personnel auxiliaire à condition qu'un entraînement scolaire soit structuré et appliqué selon des normes et limites, et à condition que le praticien fasse surveillance à l'intérieur des prérogatives consenties.

Presque d'un même souffle, une législation donnait droit aux denturologistes, de transiger directement avec le public.

Au point de vue pratique cette législation ne changeait pas grand'chose puisque beaucoup de techniciens nageaient allègrement dans les eaux de l'illégalité, et ce n'était pas l'amende occasionnelle qui freinait les élans de ces messieurs; l'inefficacité des moyens de répression devenait presque une invitation à recommencer.

Si, dans le cas de hygiénistes, les praticiens étaient satisfaits du principe d'extensionner les tâches, ils l'étaient moins dans le cas des denturologistes. Il n'y avait qu'un seul heureux, le gouvernement. Il ouvrait des portes à une apparente économie d'argent dans la distribution des soins dentaires et ce pour un plus grand nombre de citoyens.

Les dangers de ces législations sont multiples, et ils ne se présentent pas uniquement au niveau des dentistes dont les sources de revenus pourraient en être affectées dans certaines régions, mais aussi pour les citoyens eux-mêmes que l'Etat prétend protéger. Rien n'assure la population que les hygiénistes qui travailleront en secteur privé ou dans les écoles, n'accompliront que des fonctions pour lesquelles elles sont qualifiées. Rien n'assure la population que les denturologistes se conformeront aux règlements imposés lors de leur accréditation.

Rien n'assure la population que les dentistes eux-mêmes

ne seront pas les complices discrets des abus possibles, en octroyant à leur hygiéniste des tâches autres que statuées, les croyant capables, ou les entraînant à des tâches non incluses dans les prérogatives.

Lorsqu'on chuchotte que certains denturologistes font des modifications directement sur les dents en vue d'une prothèse partielle, qu'on parle qu'éventuellement les infirmières pourront, dans les écoles, faire la dentisterie opératoire, l'endodontie, l'exérèse des dents temporaires et les appareils de maintien, eh bien, on peut déjà songer que la porte s'ouvre sur des horizons insoupçonnables. Faire une obturation pour l'enfant en milieu clinique scolaire ne présente pas plus de difficulté technique que s'il s'agissait d'un adulte en cabinet privé.

Resteraient les cas de restaurations compliqués, de cancers de la bouche, réhabilitation des becs-de lièvre, les implants ainsi que plusieurs autres menus détails dont les généralistes pourraient peut-être s'occuper une simple législation — et, à plus ou moins brève échéance, le gouvernement pourrait presque s'épargner les honoraires des spécialistes.

A travers la fantaisie, se dégage tout de même l'idée que la profession doit exercer un contrôle encore plus vigilant et garder un rythme de contrôle afin que la technocratie ne s'aventure pas dans des sillons qui pourraient, à la fin, compromettre la santé du public. Divers groupements s'occupent de tous les aspects de la profession. Il est à souhaiter qu'ils songent à structurer les bases d'un système de surveillance.

Dr. Robert Lambert
Rédacteur scientifique
de langue française



Son traitement au fluorure est terminé. Laissez le fluorure de Colgate prendre la relève.

Le fluorure MFP* de Colgate* donne à vos clients une protection supplémentaire contre la carie, entre deux traitements.

C'est un fait. Nos tests cliniques ont prouvé que l'emploi **seul** de Colgate au fluorure MFP réduisait considérablement le taux de caries nouvelles. Dans le cadre d'un traitement local, il devrait donc entraîner une réduction encore plus notable.

Colgate au MFP présente des avantages spécifiques et importants:

1. L'usage régulier de Colgate rend les dents plus résistantes à la carie. Nous croyons que le MFP

(monofluorophosphate de sodium) contenu dans Colgate parvient à transformer la couche d'apatite qui recouvre les dents, en fluorapatite (un fluorophosphate de calcium), grâce à la similarité de propriétés chimiques de ces deux substances.

2. Tandis que certains dentifrices ont tendance à tacher les dents, il est bon de savoir que Colgate avec MFP ne présente pas ce problème.

3. Colgate au MFP est reconnu pour la **stabilité de son fluorure**; même après trois ans, le monofluorophosphate de sodium reste présent et efficace.

Aussi, dès que vous aurez terminé leur traitement au fluorure, parlez à vos clients de cette protection supplémentaire que leur apporte le dentifrice Colgate au MFP. Donnez-leur une chance de plus de lutter contre la carie.



"Colgate avec MFP s'est révélé un dentifrice préventif contre la carie dentaire et son emploi peut avoir une valeur importante lorsqu'on l'utilise dans le cadre d'un programme d'hygiène buccale exécuté avec application et de soins dentaires professionnels réguliers."

L'Association Dentaire Canadienne.

Colgate-Palmolive Canada.

*TM Reg'd.

CDA GRANTS SECTION STATUS TO ASSOCIATION OF PROSTHODONTISTS

During its 1976 annual meeting in Edmonton, the Board of Governors of the Canadian Dental Association approved a motion granting section status to the Association of Prosthodontists of Canada.

As a recognized section of the CDA, the Association of Prosthodontists takes its place with the eight other specialty sections. These are: the Canadian Academy of Endodontics; the Canadian Academy of Oral Radiology; the Canadian Academy of Oral Pathology; the Canadian Academy of Oral Surgeons; the Canadian Association of Orthodontists; the Canadian Academy

of Paedodontics; the Canadian Academy of Periodontology; and the Canadian Society of Public Health Dentists.

Other topics considered during the Board meeting included the following:

Hospital accreditation — The Board recommended that the whole subject of hospital accreditation be reviewed in concert with the corporate members in an attempt to redefine roles and responsibilities and develop a system for accreditation of hospital dental services which meets the demands of all corporate members. Corporate members have been invited to submit their

recommendations on this matter to the Executive Council of the CDA.

Membership fee — The Board announced that the regular membership fee would be increased from \$65.00 to \$90 and the associate membership fee from \$20.00 to \$35.00. Notice of this increase was given at the 1975 Board of Governors' meeting in St. John's, Newfoundland. At that time, corporate members were notified that the increase was expected to be approved at the 1976 meeting and were asked to make any required provincial by-law changes in order to comply with the proposed increase. It was also noted at that time that no membership fee increases to finance the operations of the Canadian Dental Association had been made since 1968.

Constitution and by-laws — The by-laws of the CDA came under close scrutiny during the meeting and a number of major revisions were recommended by the Board of Governors. These are presently being carried out and will be reported on in a future issue of the Journal.

Liaison with American Dental Association — The Finance Committee of the Canadian Dental Association is in the process of arranging a meeting with the Inter-Agency Affairs Committee of the American Dental Association. The meeting is expected to be held in the spring of 1977, in conjunction with a meeting of the CDA Executive Council so that CDA representatives are already assembled. It is hoped that these meetings will be held on a regular alternating basis with the ADA.

Pain control and patient management

The University of Toronto's Faculty of Dentistry is offering a continuing dental education course in pain control and patient management. It will be a participation course of six days' duration which will be spread over a three month period. Participants will be divided into small groups with six all-day sessions.

All of the aspects of safe management of sedative techniques involving drugs and inhalation agents will be taught. The course will also be involved with patient selection preanaesthetic evaluation, physical armamentarium and complications and emergencies. Participants will be required to provide their own patients for the practical application of the technique to be utilized. The course will be presented by Professor R. S. Locke and staff of

the Department of Anaesthesia.

Total enrolment: 18

Tuition Fee: \$350.00

There will be six participants in each group. Dates are as follows:

Lectures: April 13, 20 and June 8, 1977 (full group).

Clinical participation: Group 1: April 27, May 3 and 11, 1977. Group 2: April 28, May 4 and 12, 1977. Group 3: April 29, May 6 and 13, 1977.

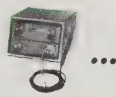
Please make your cheque payable to the University of Toronto and send with the application to: Dr. G. S. Beagrie, Director, Division of Postgraduate Dental Education, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto, Ont. M5G 1G6.

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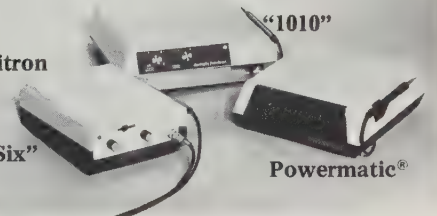
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NDEB AND RCD(C) ANNOUNCE EXAMINATION FOR SPECIALISTS

The National Dental Examining Board of Canada and the Royal College of Dentists of Canada recently announced that a special examination will be held for qualified specialists who wish to obtain the NDEB/RCD(C) specialist certificate and who are not eligible through affiliation with the Royal College.

It is expected that the examination will be held in the late fall (probably early December) of 1977 over a period of two days, or more, depending on the number of applicants.

The examination will be both written and oral and will be clinically oriented. Examiners will be Fellows of the Royal College acting on behalf of the National Dental Examining Board.

This examination will be given once only with one supplemental privilege, and is open to any specialist who is certified within a province in one of the specialties recognized by the Canadian Dental Association, or those practitioners who qualify under Section 4 of the Regulations regarding NDEB/RCD(C) Specialist Certificates. Section 4 reads as follows:

"Non-Fellows of the RCD(C) and non-holders of provincial specialty certification, who have graduated from approved specialty programmes in Canada or the United States, or from other programmes recognized by the RCD(C) as comparable, will be assessed by the RCD(C) Credentials Committee on behalf of the NDEB. If eligible they will take the applicable NDEB/RCD(C) specialists' examination."

Successful completion of this examination will not be considered as any part of the requirement for Fellowship in the Royal College.

The fee for this examination will be \$425.00 payable to the NDEB, which includes issuance of the NDEB/RCD(C) certificate.

Application forms and further information may be obtained from the office of the National Dental Examining Board of Canada, 100 Bronson Avenue, Suite 807, Ottawa, Ontario K1R 6G8. The deadline for applications is June 1, 1977.

INTERNATIONAL SCIENTIFIC MEETING SOLICITING PAPERS

The theme of the eighth International Scientific Meeting of the International Epidemiological Association to be held in Las Croabas, Puerto Rico, September 18-23, 1977, is "Epidemiological Strategies for Health in a Changing World." Papers on current global patterns of oral disease prevalence or that demonstrate the application of epidemiological principles to oral health problems and/or services are being solicited.

Papers to be presented should be new or imaginative contributions, and should not have been presented or published elsewhere prior to the Puerto Rico meeting. Speakers will be allotted

15 minutes for a formal presentation to be followed by a five-minute discussion period. Final selections of papers for oral presentation will be made in April, 1977, and authors whose papers are selected will be notified in May.

Abstracts submitted for consideration must be postmarked by January 31, 1977. Official abstract forms and further information regarding reduced travel-hotel package rates may be obtained by writing to: Dr. Carlos Luis Gonzalez, M.D., Program Secretary, Universidad de Los Andes, Facultad de Medicina, Centro de Estudios de Post-Grado, Merida-Venezuela.

Royal College to hold special examination in endodontics, June '77

The Royal College of Dentists of Canada has agreed to hold a special once only examination in Endodontics on June 20, 1977. Candidates must be able to substantiate that they were in practice, exclusively limited to endodontics, prior to January 1, 1965. Application forms may be obtained from the Secretary-Registrar-Treasurer, the Royal College of Dentists of Canada, Ste. 614, 170 St. George Street, Toronto, Ontario M5R 2M8. The forms must be completed and returned to the Secretary of the College before January 15, 1977, accompanied by the examination fee of \$150.00.

Academy of Oral Radiology

The Canadian Academy of Oral Radiology held its fifth general meeting in Edmonton on September 12 in conjunction with the Canadian Dental Association's 1976 Convention. During the meeting the following slates of officers was installed for the 1976-77 term of office: C. G. Baker of Winnipeg, immediate past president; Y. Panneton of Quebec City, president; A. Ruprecht of Saskatoon, president elect; C. E. Hawrish of Edmonton, secretary; and S. Kogon of London, treasurer.

The scientific session which followed the regular business meeting, consisted of a workshop under the direction of Dr. C. E. Hawrish dealing with the subject of minimal standards for the training of dental auxiliaries in oral radiology. This led to the establishment of a sub-committee charged with the development of recommendations for minimum standards.

Once this report is completed and has been reviewed by the standing committee on education and the membership of the Canadian Academy of Oral Radiology, it will be forwarded to the Canadian Dental Association with recommendations for its use in evaluating programs.

EARLIER ONSET OF ORAL CANCER IN WOMEN WHO SMOKE, DRINK

Researchers at the Department of Biostatistics, Roswell Park Memorial Institute, Buffalo, have reported that women who drink and smoke heavily are likely to develop cancers of the oral cavity and tongue at a younger age.

The report of Irwin J. D. Bross, Ph.D., and Jeanne Coombs, M.S., was presented at the Toronto meeting of the American Association for Cancer Research.

The report was based on a comparison of women with and without oral cancer who were examined at Roswell Park, a New York cancer research center, between 1957 and 1966. One hundred forty-five patients with cancer were included in the sample, 80 of whom had tumors of the oral cavity and 65 with cancer of the tongue.

After a statistical analysis of their sample, the researchers concluded that "exposure to both alcohol and tobacco can lead to onset of oral cancer 15 or more years earlier than this occurs in women who abstain from both. It is of interest that exposure only to alcohol does not provide any evident reduction in the age at onset, while exposure only to cigarettes produces about a five-year age shift."

Fifty-three (36.5%) of the patients with cancer neither drank nor smoked, and in 43 of them the onset of disease took place after the 65th birthday. Eighteen women (12.4%) were heavy drinkers who smoked, and all of them had been diagnosed as having cancer before reaching 65. Women who smoked, regardless of whether drank, tended to have cancer at younger ages.

A comparison of the patients who have cancer with a cohort of 1,973 women who were examined at Roswell Park during the same period for various nonneoplastic diseases showed that the controls included relatively more nonsmokers and nondrinkers (51.8%) and far fewer heavy smokers (3.0%).

Heavy drinkers, for the purpose of the study, were defined as women whose monthly alcohol consumption consisted of at least 30 bottles of beer, 30 glasses of wine, or 30 drinks of hard

liquor. Smokers were not divided into categories, since most of them smoked one package of cigarettes or less a day.

The investigators term their report "unequivocal evidence in humans that when two carcinogens act on the same target cells, the effect seems to be to accelerate the carcinogenic process."

They estimate that women between the ages of 40 and 64 years who smoke and drink more than 30 ml of alcohol a day are at 18 times greater risk of mouth or tongue cancer than women who do not drink and smoke. The excess risk factor for women who smoke is about 5.0, regardless of their drinking habits.

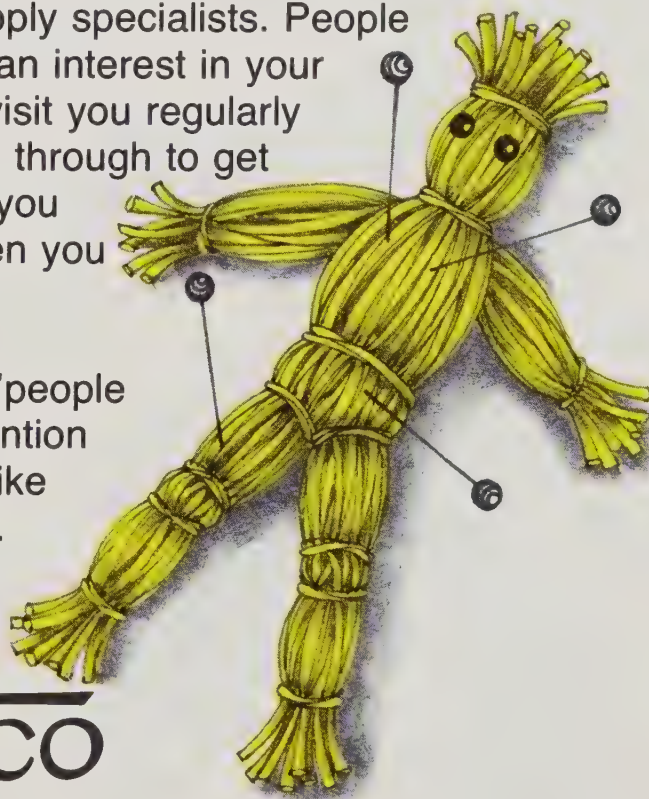
Lost art?

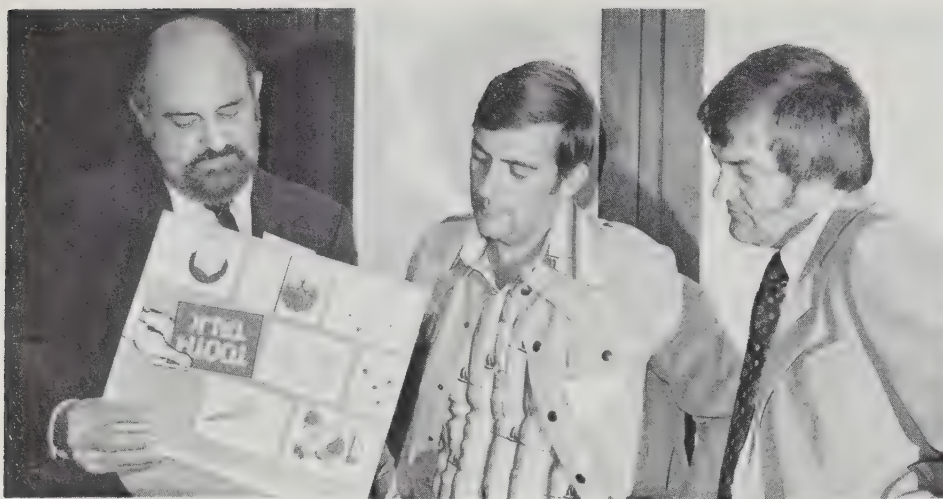
Ever wonder what you have to do to get a little attention from your dental supplier. Could be that business is so good that he doesn't need you . . . then again, maybe he's forgotten the importance of customer "service".

Get the point, Doctor. You're better off dealing with a full line supplier like Denco, who field a team of knowledgeable dental supply specialists. People who take an interest in your practice, visit you regularly and follow through to get you what you need, when you want it.

Beats
"needling" people
to get attention
. . . you'll like
our action.

DENCO





Dr. Gerald Z. Wright (centre) of the Department of Pediatric Dentistry, University of Western Ontario, lectured on "Behavior Management in Dentistry for Children" at the ninth annual seminar on pedodontics sponsored by the American Society of Dentistry for Children and held in August at the American Dental Association headquarters in Chicago. Following his lecture, Dr. John D. Tabak (left), president of ASDC, showed the new "Tooth Talk" teacher's guide/flip chart to him and Dr. Bohdan Lew Kuzyk of Edmonton.

FLUORIDATION: COSTS VERSUS SAVINGS

The cost of a controlled fluoridation installation will vary with the volume of water to be treated.

Equipment costs for a small system should be in the neighbourhood of \$4,500 to \$6,000, and for a somewhat larger system might be \$10,000 or more.

Installation costs should be relatively minimal in most cases but, in difficult situations, could perhaps double the cost. Although most existing plants could accommodate the fluoridation equipment, in some cases small extensions would be required and these costs would have to be taken into consideration. The installation costs might be charged off in the first year or, if preferred, amortized over a number of years.

Municipal officials should be able to obtain assistance in cost estimating from the provincial authorities responsible for the environment. However in special cases, in order to ensure that a representative cost figure is obtained, it is best to contact one or more equipment manufacturer or consulting engineer.

After the equipment comes into operation, the cost of the fluoride to be added to the water depends upon such factors as the fluoride compound used, freight charges and the number of people served. To give one example, in

Ontario the 1975 reported annual fluoride costs per capita ranged from a low of 4.2 to a high of 62.0 cents. The average for the fluoride was 14.5 cents. Operating costs were added for 26 systems (out of 40 reporting) and these showed an average of 46.1 cents (including the fluoride.) Four of these, however, were unusually high and, if omitted, the per capita average for the 22 other systems was 21.8 cents, total costs.

When compared to savings to the community, within a few years, in teeth, time and dollars, these costs are extremely small.

Apart from the obvious benefits of having better teeth and preventing discomfort, there are savings of time and money to the person who thus avoids being absent from school, home or work. One of the most impressive savings is in dollars. Tests in many parts of the continent show that, when fluoridation has been in effect for some time, the cost-per-patient of dental health care programs for children is reduced by about 50%. Dentists then have more time to provide more care for more people.

Prepared by Lloyd Bowen, Fluoridation Officer for the Canadian Dental Association.

CDNAA elects new board of directors

The Canadian Dental Nurses and Assistants Association has elected its Board of Directors for the 1976-77 term of office.

Members include: Kerris Franklin of Edmonton, president; Marlane Paquin of Richmond, B.C., first vice-president; Rosalie Stoss of Montreal, second vice-president; Barbara Peterson of Calgary, secretary; Elain Wesley of Lethbridge, treasurer and certification chairman; Elizabeth Purchase of St. John's, Nfld, past president; Jane Faulafer of Vancouver, Journal editor; and Teresa Senecal of Dorval, Que., publicity chairman. Lynn Wilson of Androssan, Alta., is also on the Board as the representative to the Canadian Dental Association's Council on Health Care.

DEATHS

Eaton, K. B., Kentville, N.S. Harvard University, 1928. 7-76.

MacDonald, Thomas Forrester, 95. Edmonton, Alta. University of Pennsylvania, 1905. 4-10-76. Survived by Dr. L. Vance MacDonald (son).

O'Neill, A. J., 71. Edmonton, Alta. University of Alberta, 1934. 11-76.

Simon, Saul, Nassau, Bahamas. Royal College of Dental Surgeons, 1922. 3-10-76.

CDA Retirement Savings Plan

Unit values of the Canadian Dental Association Retirement Savings Plan stood as follows on October 31, 1976:

<i>Common Stock Fund</i>	\$27.623
<i>Fixed Income Fund</i>	\$17.932
<i>Guaranteed Fund</i>	\$13.069

Total assets (market value) of the plan were \$23,547,874.31.

For further information write to: CDA-sponsored Pension and Insurance Plans, 234 St. George Street, Toronto, Ont. M5R 2P2.

Instructions to Contributors

The Journal of the Canadian Dental Association is currently soliciting research and clinical articles for publication. Interested contributors are asked to use the following outline of requirements when preparing manuscripts.

Manuscripts: Manuscripts should be submitted to the editor with a covering letter requesting consideration for publication in the Journal. Send two copies — original and a carbon — typewritten with all material (text, quotations, tables, legends, references, etc.) double-spaced, on one side of the sheet, $8\frac{1}{2} \times 11$ inches, with ample margins on all four sides. The author should always retain a carbon copy of material submitted. Every article should contain a summary of the contents.

Original articles are considered and accepted subject to the understanding that they are submitted solely to this Journal, and will not be reprinted without the consent of both the editor and the author.

The editor reserves the right to fit articles within the space available and to make usual editorial alterations in manuscripts; these include such changes as are necessary to ensure correctness of grammar and spelling, clarification of obscurities or conformity to Journal style. In no case will major changes be made without prior consultation with the author. The senior author will receive either the edited manuscript or galley proofs for checking prior to publication.

Article Titles Make article titles descriptive but as concise as possible. Long titles discourage reading, present

typographical and layout problems and create difficulties in library indexing.

References: Authors should limit references to published work to the minimum necessary for guidance to readers wishing to study the subject further. They should not quote articles they have never seen. Except in review articles, the maximum number of references should not be more than 25. References should be numbered in the text and should be set out in a separate numbered list at the end of the article.

For journal references, give the author's name, article title, journal name, volume number, first page of article, and year of publication:

1. Gibb, G. H. Methods of achieving improved amalgam restorations. *J Canad Dent Ass* 30:413, 1964.

For books give the author's name, book title, location and name of publisher, year of publication:

2. Kilpatrick, H. C. *Work simplification in dentistry*. Ed. 2. Philadelphia, Saunders, 1964.

Illustrations: Line and halftone illustrations should be of high quality for satisfactory reproduction.

Photographs — Handle photographs carefully. Do not bend, fold or use paper-clips. Photographs should be unmounted, untrimmed, good, sharp, black and white glossy prints, preferably not larger than 10×8 inches. Color work can only be published at the author's expense. Magnification of photomicrographs must always be given. Photographs must not be written on or typed on. On the back of each photograph, very lightly and in pencil, write the author's name, the figure number and indicate the top edge. If a

figure contains two or more photographs, do not mount the parts; on the back of each photograph write very lightly in pencil the figure number and part letter (Figure 1a, etc.) and indicate the top edge. Patients must not be recognizable unless the written consent of the subject to publication has been obtained.

Drawings — Figures, graphs, charts and diagrams should be drawn and lettered in india ink. Lettering must be large enough to be read after the drawings are reduced to column width (small, simple drawings) or page width (larger, more complex drawings).

Legends — Figure legends should be typed as a group on a separate sheet. They should be separate from the text of the article and from the illustrations.

Tables: Each table should be typed on a separate sheet. Tables should be numbered consecutively and tailored to fit within column width or page width. Table title and table footnotes should be on the same page with the table. Do not show vertical rules in tables.

Permission and Waivers: These should accompany the manuscript when it is submitted for publication. Permission of author and publisher must be obtained for the direct use of material (text, photos, drawings) under copyright that is not your own. Up to one hundred words of prose material usually can be quoted without getting permission, provided the material quoted is not the essence of the complete work. Waivers must also be obtained for the publication of photographs showing persons, unless faces are masked to prevent identification. Waiver forms are available from the editor.

CDA STUDENT MEMBERSHIP '76

Muscle Power

The 1976-77 CDA Student Membership Campaign began in early September at each of the ten Canadian Dental schools. The following is a two month progress report of student membership within the Association. At the end of October, student membership within the CDA was 64.6% of all undergraduate dental students in Canada. Membership percentages within each dental faculty are listed below.

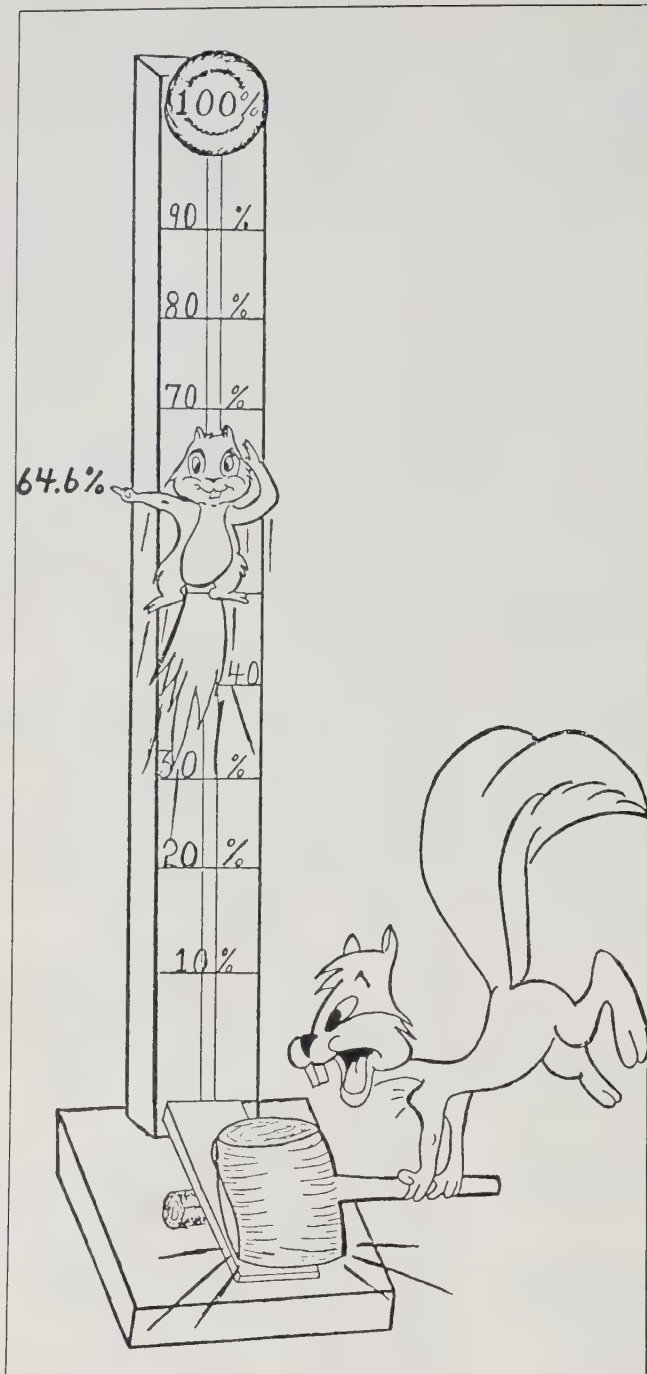
Membership benefits for Canadian dental students are uniform across Canada except for those students in Ontario who receive conjoint Canadian Dental Association/Ontario Dental Association Student Membership.

This high volume of student membership within a two month period is due to the hard work and conscientious efforts of the CDA Student Representative at each dental faculty. The CDA is very grateful for the support which these individuals have given to the Association and for the efforts which they have made in promoting student membership within their own dental schools. The CDA Student Representatives at the ten Canadian Dental Faculties are as follow:

Mr. David Sweet	— University of British Columbia
Mr. Ivano Ongaro	— University of Alberta
Mr. Bernie Trischuk	— University of Saskatchewan
Mr. David Maycher	— University of Manitoba
Mr. Art Worth	— University of Western Ontario
Ms. Anne Sarvari	— University of Toronto
Mr. David Campbell	— McGill University
M. Jean-Louis Paiement	— University of Montreal
M. Pierre Legare	— Laval University
Mr. Brian Mailman	— Dalhousie University

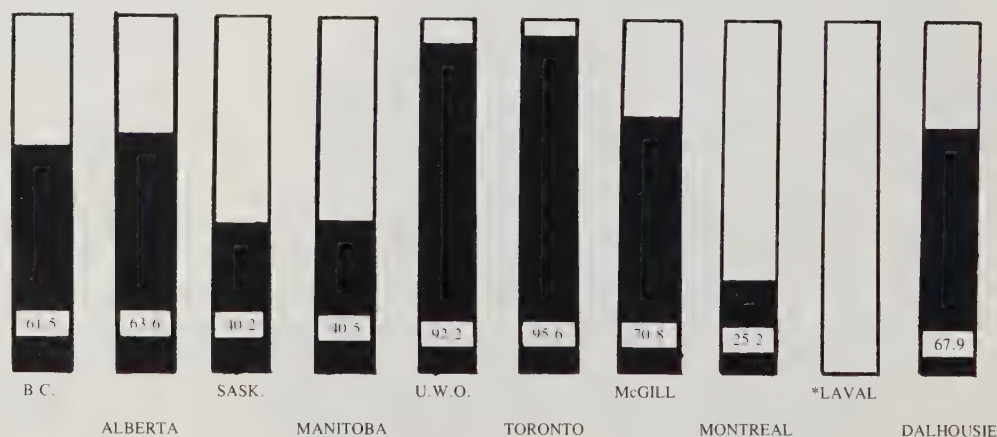
Keep up the good work and let's increase these figures for the next two month progress report!!

Can we hit 100% this year?

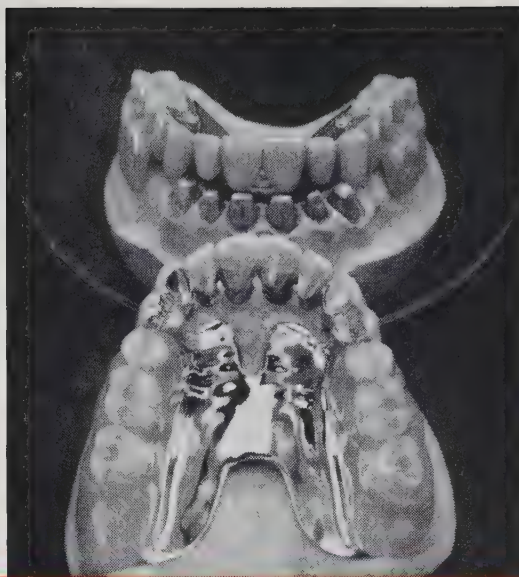


THE PERCENTAGE OF STUDENT MEMBERS
UNDERGRADUATE ENROLLMENT

AT EACH CANADIAN DENTAL SCHOOL



* Laval University is on strike and there are no students at the school to receive student membership materials



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Wherever you practice there is a Nobilium laboratory nearby . . . ready to process your partials with the "aristocrat of chromium alloys" . . . partials that satisfy every patient desire for dependable fit, functional service, oral comfort and lifelike aesthetics. Here is the list of skilled laboratories from British Columbia to Nova Scotia equipped with the latest Nobilium equipment and materials and dedicated to serve your every requirement. Entrust your prescriptions to them with confidence.

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Pearce Dental Lab
250 Lawrence Avenue West

**The Posen & Furie
Dental Laboratories Limited**
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Walter Wood Dental Laboratories
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ONTARIO — HAMILTON

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J. W. Birnie Dental Lab.
206 King Street

ONTARIO — CAMBRIDGE

Achmann Dental Lab.
87 Grand Ave. South

ONTARIO — ORILLIA

Orillia Dental Laboratory
225 West Street North

ONTARIO — OSHAWA

Multi-County Dental Laboratories
172 King Street East

BRITISH COLUMBIA — VANCOUVER

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1070 Homer Street

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Universal Dental Laboratories Ltd.
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**Associated Crown & Bridge
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Manitoba Dental Labs.
333 Kennedy St.

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Oralium Enrg.
720 Rue Gilles

QUEBEC — MONTREAL

Dentarium Laboratories
6997 Victoria Avenue

Nobident Dental Laboratory
3726 Jean-Talon West

Roger Sauve Dental Laboratory
5545 Beaubien Est

QUEBEC — QUEBEC CITY

G. Garneau Dentel Lab.
386 Dorchester, Sud.

L'ADC ELIT UN NOUVEAU PRESIDENT

Le Dr Michael Cipton de Moncton a été élu président de l'Association dentaire canadienne le 15 septembre, au cours du congrès national 1976 de l'Association qui a eu lieu à Edmonton.

Né à Montréal, Dr Cipton a obtenu son diplôme à la Faculté dentaire de l'Université McGill en 1957. En 1960, il obtint son diplôme de spécialiste en orthodontie à l'Université de Montréal. Il exerce depuis sa spécialité dans un cabinet individuel de la ville de Moncton. En 1967 il devint membre (Fellow) du Collège royal des dentistes du Canada.

Le Dr Cipton collabore depuis de longues années à la profession organisée. Il est membre de l'American Association of Orthodontists, la Northeastern (U.S.) Society of Orthodontists et la Société orthodontique européenne. Il a servi à titre de gouverneur du Nouveau-Brunswick au Conseil de l'ADC et a siégé au Conseil du FCED à titre de représentant des provinces atlantiques. Il a également fait partie du Conseil national des examinateurs dentaires pendant cinq ans.

Le Dr Cipton siège au Conseil exécutif de l'ADC depuis 1974, et de plus,



Dr. Michael Cipton

il a présidé, au cours de ces dernières années, de nombreux conseils et comités de l'ADC. Il était président du Conseil de l'éducation en 1973-74 et en 1975, il a été nommé président du Comité des finances ainsi que du Comité ad hoc des priorités. Il a également fait partie du Comité ad hoc de l'ADC sur l'assurance.

LE DR DONALD L. RIFE EST NOMME FUTUR PRESIDENT

Le Dr Donald L. Rife, dentiste renommé de Toronto, a été élu par acclamation futur président de l'Association dentaire canadienne, lors de l'assemblée annuelle du Conseil de l'Association tenue à Edmonton. Dr Rife entrera en fonctions à titre de président de l'ADC à la conclusion de l'assemblée annuelle 1977, destinée à avoir lieu à Toronto.

Né à Toronto, Dr Rife a servi pendant plus de cinq ans dans le Corps dentaire canadien lors de la deuxième guerre mondiale, à titre d'assistant dentaire et surtout à celui de technicien dentaire. Diplôme à la faculté dentaire de l'Université de Toronto en 1950, il a commencé à exercer sa profession, res-

treignant petit à petit sa clientèle aux enfants.

Le Dr Rife a exercé la dentisterie infantile pendant 18 ans et pour une partie de cette période, il était membre de l'American Academy of Pedodontics. Au printemps de 1975, il a repris l'exercice de la dentisterie générale.

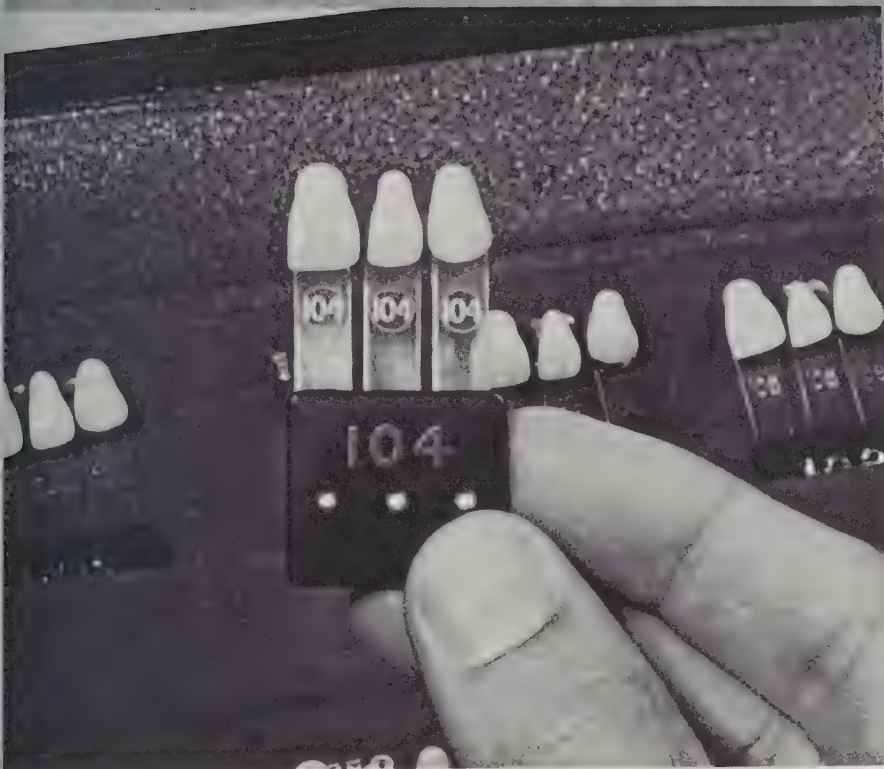
Le Dr Rife a servi la profession organisée dans de nombreuses capacités. Il est membre et ancien président de la Société canadienne de dentisterie infantile, membre de l'American Academy of Dentistry for the Handicapped, membre de la Fédération dentaire internationale et, bien entendu, membre des Associations dentaires de l'Ontario et canadienne.

Il a été élu aux postes suivants, qu'il occupe actuellement: membre du Conseil de la section de l'Ontario de la Société canadienne de dentisterie infantile; secrétaire-trésorier national de la Société canadienne de dentisterie infantile; et membre du Conseil de la Société dentaire du nord de Toronto. Le Dr Rife fait également partie du Bureau des gouverneurs et du Conseil exécutif de l'Association dentaire de l'Ontario, ainsi que du Bureau des gouverneurs et du Conseil exécutif de l'ADC.

Outre sa participation aux organismes dentaires professionnels Dr Rife est membre des Power Squadrons canadiens et de la Société philatélique royale du Canada.



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Benoit Levesque de l'Université Laval

DEMONSTRATIONS CLINIQUES SUR TABLE POUR ETUDIANTS

La sixième démonstration clinique sur table, organisée dans le cadre du Congrès 1976 de l'Association dentaire canadienne tenue du 12 au 15 septembre à Edmonton, Alberta, était parrainée par la Société Dentsply Canada Ltd., grâce à une subvention spéciale accordée au Fonds canadien pour l'enseignement dentaire.

C'était pour la sixième année consécutive que le Conseil sur l'éducation de l'ADC organisait des démonstrations cliniques pour étudiants et neuf écoles dentaires canadiennes y étaient représentées.

Les étudiants avaient droit à un voyage tous frais payés pour aller présenter leur travail, après avoir obtenu la première place au programme de démonstration clinique sur table du printemps de leur faculté. Les doyens des facultés dentaires n'offrant pas ce programme ont été invités à choisir un étudiant clinicien de mérite afin qu'il participe au programme annuel.

Aux termes d'une définition établie par le Conseil sur l'éducation de l'ADC, une démonstration clinique sur table consiste à présenter sur une table une technique ou une méthode se rapportant à une phase quelconque de la recherche, de diagnostic ou de traitement dentaires.

Benoit Levesque de l'Université La-

val et Brian A. J. Markham de l'University of Western Ontario sont les deux premiers gagnants du programme. La démonstration de Monsieur Levesque était intitulée "Greffes libres et tissu mou" et la présentation de Monsieur Markham portait le titre "Les indications et contre-indications de coiffage indirect de la pulpe". On a également décerné une mention honorable à Claude LaMarche de l'Université de Montréal pour les recherches méritoires qu'il a effectuées dans le cadre de sa clinique, intitulées "La dentition: un indice de maturité physiologique".

Les neuf étudiants ont présenté leur démonstration clinique sur table le dimanche après-midi lors d'une séance privée de visionnement réservée aux juges, tenue à l'hôtel Edmonton Plaza. Au cours de la soirée, M. Alan J. David, vice-président des services des Relations publiques de Dentsply International, accueillait les étudiants cliniciens à une réception et un dîner offerts par cette société. Le dîner, qui a eu lieu au Château Lacombe réunissait environ 60 personnes y compris les étudiants cliniciens, les doyens, les conseillers des facultés des écoles dentaires canadiennes, ainsi que des invités de marque représentant la profession et l'éducation dentaires.

Parmi les invités d'honneur à la table principale, se trouvaient le Dr et Mme H. Lindsay Mussells, président sortant de l'ADC; Dr et Mme Michael J. Crompton, président de l'ADC; M. Lloyd Stevenson, directeur exécutif de l'Association dentaire canadienne; Dr et Mme Jack Neilson, président du Fonds canadien pour l'enseignement dentaire et doyen de l'Université de Manitoba; Dr Maynard K. Hine, président de la Fédération dentaire internationale; Dr et Mme Irving Gruber, premier vice-président de l'American Dental Association; M. Stanley O. Tebbutt, vice-président du Fonds canadien pour l'enseignement dentaire et M. Alex Currie, administrateur du Fonds canadien pour l'enseignement dentaire.

On pouvait également compter parmi les invités de marque le Dr J. Fred Reid, ancien président de l'Association dentaire canadienne; Dr et Mme Murray Cornish, président du Comité du congrès national; M. et Mme D. Murray McDonald, directeur exécutif du Fonds canadien pour l'éducation dentaire; Dr Ernest R. Ambrose, doyen de l'Université McGill; Dr Jean P. Lussier, doyen de l'Université de Montréal; Dr et Mme James McCutcheon, doyen de l'Université d'Alberta; Dr et Mme C. W. B. McPhail, doyen de l'Université de Saskatchewan et Dr Paul Simard, directeur de l'Université Laval.

Un grand nombre des membres des facultés des écoles dentaires participantes, qui servaient à titre de conseillers aux étudiants cliniciens, étaient également présents. Il s'agit des Dr Ralph Y. Barolet, Université Laval; Dr A. H. Ervin, Université Dalhousie; Dr et Mme Cliff Revell, Université d'Alberta et Dr M. Suzuki, University of Western Ontario.

Les juges du programme de cette année assistaient aussi au dîner: Dr Armand Fortier, Dr M. A. Kamienski ainsi que Dr H. R. MacLean.

Suivant l'annonce des gagnants lors des cérémonies de l'inauguration officielle du Congrès de l'ADC dimanche soir, les neuf étudiants sont retournés à l'hôtel Edmonton Plaza pour présenter leur démonstration à tous les délégués.

LLOYD STEVENSON NOMME DIRECTEUR EXECUTIF DE L'ADC

Le Conseil Exécutif de l'ADC a annoncé lors de l'Assemblée annuelle 1976 de l'Association tenue à Edmonton, la nomination de Monsieur Lloyd Stevenson à titre de Directeur exécutif de l'ADC.

Monsieur Stevenson a servi à titre de Directeur administratif de l'Association depuis mai 1975; le 1er juin 1976, il était nommé Directeur exécutif intérimaire. Il succède au Dr William G. McIntosh qui a démissionné plus tôt cette année.

Avant de se joindre au personnel de l'ADC, M. Stevenson était vice-président des opérations pour Villacentres Ltd., une chaîne de maisons de convalescence dont le chiffre d'affaires s'élève à plusieurs millions.

Diplôme de la faculté d'administration institutionnelle à l'Université de Toronto, M. Stevenson a également fait des études de psychologie et de sociologie à McMaster University, ainsi que la philosophie à l'University of Western Ontario. Membre (Fellow) de l'American College of Nursing Home Administrators, il est également inspecteur attitré de la Santé publique canadienne.

M. Stevenson possède plus de 20 ans d'expérience aux niveaux supérieurs d'administration et de gestion dans le domaine des soins de la santé. Il est ancien président de l'Institute in Nursing Home Care et Gouverneur du Canada au sein de l'American College of

Nursing Home Administrators. Il fait également partie des organismes suivants: American Geriatrics Society (la Société américaine de gériatrie); American Nursing Home Association (l'Association américaine des maisons de convalescence); Board of the Canadian Council of Hospital Accreditation for Extended Care Facilities (Bureau du Conseil canadien pour l'accréditation des hôpitaux dispensant des soins prolongés au Canada); et la Chambre de Commerce de Toronto. En outre, l'Association des maisons de convalescence de Nouvelle-Écosse lui a décerné le titre de membre honoraire et celle de l'Ontario lui a accordé celui de membre honoraire à vie.

M. Stevenson possède une expérience considérable en ce qui concerne la négociation de contrats collectifs et en qualité d'arbitre dans le domaine des relations ouvrières. Conférencier renommé aux congrès d'une foule d'associations importantes du domaine des soins de la santé, il a servi en qualité de chargé de cours invité au programme de maîtrise en gestion hospitalière à l'Université d'Ottawa.

L'expérience qu'il possède dans le domaine de la négociation avec le gouvernement aux niveaux sous-ministériel et ministériel sera de toute évidence extrêmement précieuse lorsque l'Association déménagera à son nouveau siège social à Ottawa.

PRIX DE LA FONDATION DENTAIRE CANADIENNE DE RECHERCHE

Le prix de la recherche décerné par la Fondation canadienne de recherche dentaire, qui s'élève à \$500, a été décerné au Dr F. J. Hechter du Manitoba, lors du Congrès national 1976 de l'ADC tenu à Edmonton. Le Dr Hechter a remporté ce prix pour ses recherches qui ont abouti à un article intitulé "Symétrie et forme de l'arcade dentaire de patients traités au moyen de techniques orthodontiques"; ces re-

cherches ont été effectuées à la faculté dentaire de l'Université de Manitoba.

Le prix décerné par la Fondation à une institution a été remporté par le département d'orthodontie de l'Université de Manitoba, pour les recherches de mérite qui y ont été effectuées. Le Dr J. W. Neilson, Doyen de la faculté dentaire de l'Université a accepté ce prix, un livre aux feuilles en cuivre monté sur un attrayant socle en bois.

Directeur général des services dentaires

Le Colonel W. R. Thompson a été promu au grade de brigadier-général et nommé Directeur général des services dentaires de l'armée royale canadienne.

Né à Campbell, Ontario, le Général Thompson y a fait ses études élémentaires et secondaires. Pendant la deuxième guerre mondiale, il a servi dans l'armée canadienne à titre d'assistant dentaire ainsi qu'à celui de navigateur dans l'Aviation royale du Canada. Diplômé à la Faculté dentaire de l'Université de Toronto en 1949, il s'est immédiatement engagé dans le service dentaire de l'armée royale canadienne. Lors de son service outremer, il a servi à titre de dentiste militaire avec la 25ème unité dentaire canadienne de campagne (Corée) et de dentiste militaire senior avec la 1ère escadre d'avions de chasse de l'A.R.C., à Marville, France.

A la suite d'un nombre de postes de dentiste militaire senior et d'une période prolongée d'études post-universitaires en stomatologie, le Général Thompson a enseigné la stomatologie à l'École dentaire des forces canadiennes. Il a servi deux fois à titre d'officier d'état-major à la division des services dentaires au QGDN. De 1970 à 1974, il était commandant à la 13ème unité dentaire à la BFC de Trenton, y compris la responsabilité régionale de l'Ontario. Au cours de cette période, il a également servi à titre de stomatologue à l'hôpital militaire de Kingston et en 1970, était chargé d'un cours spécialement conçu à l'intention de dentistes immigrants tchécoslovaques, à London, Ontario.

Avant d'occuper son poste actuel, le Général Thompson était directeur-Service dentaire (Soins) au QGDN.

En 1973, Général Thompson fut nommé à titre honorifique, chirurgien-dentiste auprès de la Reine et fut élu membre (Fellow) du Collège international des dentistes. En 1975, il fut élu président de la Commission sur les Services dentaires des forces armées de la Fédération dentaire internationale.

Le Général Thompson vit à Ottawa.

LE DR W.J. DUNN EST ELU PRESIDENT DE L'AFCD

Le Dr W. J. Dunn, Doyen de la faculté dentaire de l'University of Western Ontario, a été élu pour un mandat de deux ans, président de l'Association des facultés dentaires canadiennes. Dr Dunn succède au Dr Kenneth C. Bentley de l'Université McGill, qui continuera à siéger au conseil exécutif de l'Association à titre de président sortant.

Les membres suivants ont également été élus au Conseil exécutif: G. Niki-

foruk, Université de Toronto, vice-président; G. W. Myers, Université d'Alberta, directeur exécutif; J. W. Neilson, Université de Manitoba, trésorier; D. V. Chaytor, Université Dalhousie, membre; A. R. TenCate, Université de Toronto, président du Comité des recherches; D. Forest, Université de Montréal, président du Comité d'éducation; et R. Coulombe de Lachine, Québec, représentant de l'ADC, conseil sur l'éducation.

LES STOMATOLOGUES CANADIENS CHERCHENT A OBTENIR PLUS D'INDEPENDENCE DANS LES DOMAINES DE LA RECHERCHE ET DE L'EDUCATION

Au cours de l'assemblée annuelle 1976 de la Société canadienne des stomatologues, qui a eu lieu cet été à Halifax, le Dr. F. W. Lovely, président, a déclaré que la Société commençait à mettre en oeuvre ses propres programmes de recherches, de formation et d'éducation permanente. Il prévoit également que d'ici cinq ans, les stomatologues canadiens auront à leur disposition une organisation qui leur permettra d'être plus indépendants vis-à-vis de leurs collègues américains.

La société, lors de son assemblée, a décidé de rédiger à nouveau sa constitution, ce qui constitue un pas considérable vers l'obtention d'un statut d'indépendance pour la profession. La Société envisage également réviser ses objectifs et placer l'accent sur l'éducation permanente en ce qui concerne ses membres. Le Dr Lovely a annoncé que la Société envisageait organiser une assemblée générale tous les deux ans et proposait un atelier de travail de trois jours pour les années intermédiaires.

Le Dr Lovely a également signalé que le Canada était obligé de compter sur les universités américaines qui offraient des programmes de formation et d'éducation permanente à la plupart des stomatologues canadiens. De nombreux stomatologues qui exercent au

Canada adhèrent à la Société américaine, car celle-ci avance à grands pas dans le domaine des recherches et vers le développement général de la profession.

Dr Lovely a ajouté que ce sont les provinces atlantiques du Canada qui souffrent le plus du problème de la distribution régionale des stomatologues. Seuls 12 sur les 117 membres de la Société exercent dans cette région, dont sept en Nouvelle-Écosse.

Il n'y a actuellement au Canada que quatre centres en mesure d'offrir un programme de formation dans le domaine de la stomatologie. Ceux-ci se trouvent à Halifax, Québec, Montréal et Toronto. Toutefois, d'ici cinq ans, le Dr Lovely prévoit que des programmes auront été organisés à l'Université de Manitoba, à l'Université de Colombie-Britannique et peut-être également à l'University of Western Ontario.

Le programme qui est offert à l'Université Dalhousie ne peut accepter qu'un nouveau candidat par an; celui-ci occupe le poste de résident en stomatologie à l'hôpital Victoria General. Le Dr Lovely a signalé que pour cette année, 19 candidats du Canada, des États-Unis et de l'étranger ont postulé l'unique poste de résident qui était disponible.

La Société dentaire de Montréal

La Société dentaire de Montréal, qui comprend 500 adhérents qu'Québec, vient d'annoncer son nouveau comité exécutif pour le mandat 1976-77. Ce comité est constitué par les membres suivants: Michel Jahjah, président; Micheline Blain, future présidente; Laval Couture, vice-président; Pierre Gascon, trésorier; Yvon Desmarais, secrétaire; Pierre Duquette, trésorier adjoint; Michel Plamondon, secrétaire adjoint; Martin Payette, directeur du bulletin; André Joly, consultant; et Clément Rivest, Normand Brien et Normand Morrison, conseillers.

Club des dentistes de Montréal

Les membres suivants ont été nommés pour siéger au Comité exécutif de Club des dentistes de Montréal pour le mandat 1976-77: Drs D. Kepron, président; L. Kent, premier vice-président; R. Nadeau, deuxième vice-président; D. J. Munro, président sortant; J. M. Little, secrétaire; R. J. David, trésorier; D. Taylor, Président de la clinique d'automne; P. E. Belisle, négociations et représentations; et R. A. Lefebvre, historien et archiviste.

Les directeurs du Club comprennent les Drs D. J. Badger; P. E. Belisle; R. Kadowaki; E. Khazen; B. Nyeste; et J. W. Whitehead.

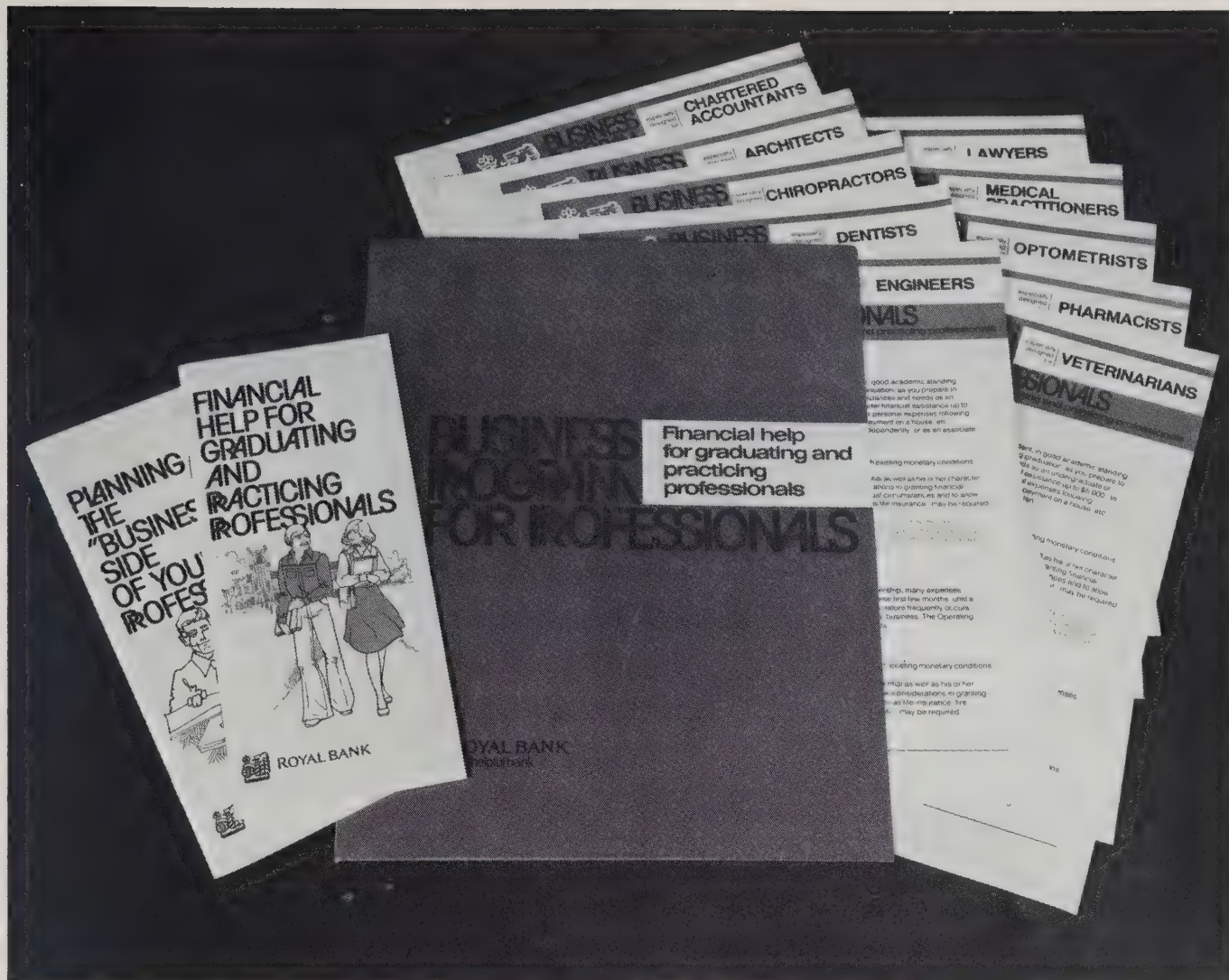
Régime d'épargne- retraite de l'ADC

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WARNINGS: Salicylates increase the effects of anticoagulants. Caution is necessary when salicylates and anticoagulants are prescribed concurrently. Also, salicylates may depress the concentration of prothrombin in the plasma. Large doses of salicylates may affect insulin requirements of diabetics. Salicylates may potentiate sulfonylurea hypoglycemic agents. Analgesic abuse (excessive and prolonged therapy) has been associated with nephropathy. TO AVOID

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ADVERSE REACTIONS: Acetylsalicylic acid: *Gastrointestinal:* dyspepsia, heartburn, nausea, vomiting, diarrhea, gastrointestinal ulceration and bleeding. *Ear reactions:* tinnitus, hearing loss. *Hematologic:* anemia, leukopenia, thrombocytopenia, purpura. *Dermatologic and Hypersensitivity:* urticaria, angioedema, pruritus, various skin eruptions, asthma and anaphylaxis. *Miscellaneous:* mental confusion, drowsiness, sweating and thirst.

Codeine: Average or large doses may cause various gastrointestinal symptoms such as nausea, vomiting and constipation.

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THE STUDY CLUB AS A MEANS OF CONTINUING EDUCATION

W. A. Jones, DMD
Indianapolis, Ind.

There is a trend in some jurisdictions to make compulsory continuing education a requirement for the renewal of a licence to practise dentistry. In addition, the *Principles of Ethics* of the American Dental Association state: "Every dentist has the obligation of keeping his knowledge and skill freshened by continuing education through all his professional life." Yet in any given year, fewer than 25 per cent of American dentists participate in continuing education programs.¹ The dental study club is one way to help solve this problem.

Besides meeting possible licensure requirements, study clubs offer such benefits as: (1) improving professional skills or acquiring new ones; (2) gaining emotional release, a vent for frustration; (3) establishing rapport among dentists; and (4) helping to build a practice.

This article relates some of the background and operations of study clubs and discusses the advantages of membership. It is based mainly on the author's three-year involvement in a club which was organized to meet the needs of a small group of Canadian dentists many miles distant from the nearest large city.

In its simplest form, the study club is a group of participants who meet regularly to further their professional education. It may have as few as six members or may become as large as the Bethesda Naval Base Gold Foil Study Club, in the Washington area, which has an active membership of between 60 and 100 participants. The Hamilton Study Club in Indianapolis, with approximately 30 members, falls somewhere in between.

While many clubs receive guidance from a mentor, others call on their own members to present various topics in rotation. Formats range from lectures or seminars, through combination clinical and lecture programs, to purely clinical sessions. Some clubs continue over a period of years, each year building on the previous year's subject matter. A prospective member of such a club must wait until a "complete course" has been presented and the topic again starts at a more basic level. Many gnathological study clubs are structured on such two or three year programs because

of the progressive complexity of the subject matter. Most clubs, however, run on an annual basis and membership is usually open at all times, provided a vacancy exists.

Why study clubs?

Prior to 1969, continuing education was not required for the renewal of licences or for maintaining membership in any state society in the United States. Seven states (California, Kansas, Louisiana, Michigan, Minnesota, North Dakota and South Dakota) now require continuing education for the renewal of licences and 27 others are considering such a requirement.² In Canada, two provinces (Alberta and Manitoba) have similar requirements.³⁻⁵ In the stated requirements for such continuing education, the study club is often cited as an acceptable vehicle. For example, the Minnesota State Board of Dentistry accepts such activities as "attendance at lecture, study clubs, college postgraduate courses and scientific sessions at conventions, as well as research, graduate study, teaching or service as a clinician."⁶ Usually, the controlling body will require a lecture and clinical schedule for the coming year, detailing the number of hours involved and the name of the mentor advising the club. Usually the mentor must also disclose his qualifications and furnish a synopsis of his proposed program. Such requirements are not onerous, and they do ensure that participating dentists will receive credit for the hours they devote to the club.

A prospective study club member may ask what a study club has to offer. A most obvious advantage is the improvement of existing clinical skills and the acquisition of new skills. The new graduate still has much to learn about dentistry, and through a study club, he can learn from the experiences of seasoned practitioners. In turn, the older practitioner can refresh his own techniques through acquaintance with those of the new graduate. All types of continuing education are designed to propagate and disseminate knowledge, but at the study club level the practitioner can actually perform these procedures on living patients. It is

this quality of participation and learning-by-doing that makes the study club somewhat unusual and even superior to many other forms of continuing education.

The study club also offers a form of emotional release. Because the members meet on a regular basis and because they must participate in clinical activities, many interpersonal barriers begin to dissolve. It is comforting to know that you are not the first dentist ever to have broken a root canal reamer inside the canal. Discussing your own practice problems with colleagues often makes resolution of these problems more apparent.

The study club also establishes a rapport within the dental community which fosters consultation and case discussion. Ultimately, this exchange of ideas and opinions will benefit the patient as well as the dentist.

Another advantage of the study club is its effect as a practice builder, especially for the younger dentist just starting out. Traditionally, the participating dentists select patients from their own practices as their study club patients. Most patients are quite willing to donate a few hours of their time for this purpose, especially if in return they receive any treatment rendered at cost. Many are impressed by the efforts of their dentist to continually improve his techniques. This factor alone can be a powerful practice builder.

The small community study club

In many parts of Canada and the United States there are small communities which may have only 20 or so dentists within a radius of many miles. If these dentists choose to attend any of the more traditional continuing education programs, they may have to travel hundreds of miles to participate. If they belong to an urban study club which meets monthly, they must travel many miles each month and often must take their own patients with them. How much simpler and less expensive it would be to have one mentor fly 300 miles to meet the group, rather than have 10 members plus 10 patients fly 300 miles to meet the mentor. This is the rationale for the kind of "small community study club" to which the author belonged.

Almost any dental community has the raw materials needed to start a study club. It takes only one dentist to stand up and declare his intentions. At a short meeting of prospective members, the topic of interest can be established, and a president and a secretary can be elected. Some clubs successfully rotate different topics throughout the year, but most clubs tend to select a single topic which they develop in more depth through the course of the year. This approach is easier in terms of arrangements and interest tends to run higher because of continuity of subject matter.

Six seems to be a minimum number of members, and 10 to 12 members may represent a maximum size for a small community club. The club that meets once a month for eight months of the year, and has eight members, costs each member annually an amount equal to the cost per session. Once the mentor's fee has been established and the cost of

his transportation and lodging determined, along with the cost of a meal and meeting room, the final cost per member is known. Though the cost will be higher than straight tuition for an urban study club, one must remember that after adding in eight return trips to the city plus living expenses, the rural study club suddenly becomes a bargain.

Facilities are usually no problem. If a study club has eight members, and if the members work in pairs, one assisting the other during clinical procedures, then four dental operatories are all that is required. If at least two dentists are located in the same building, there are probably enough chairs right there. It is no problem for the mentor to circulate up and down a hall between offices while the members work in pairs at the various chairs.

Experience has shown that the clinical sessions should be limited to about four hours. If they run longer, they become "ordeals." Because this club is expensive for its members, and because it is voluntary, it must be enjoyable or interest will soon flag. "Ordeals" must be avoided.

After the clinical session, a good format is to adjourn to a local hotel which can offer a small meeting room and a hot meal with a measure of comfort and relaxation. Much can be learned through casual conversation over an enjoyable meal. Having allowed perhaps one and a half hours for the meal, the group can then participate in a one or two hour lecture or seminar involving the topic of concern. This can be more enjoyable than sitting in a crowded lecture hall ever was.

If such a study club program starts with a clinical session from 1:00 to 5:00 P.M., followed by dinner from 5:30 to 7:00 P.M., and a lecture which ends at 9:00 o'clock, the members could still be home early. Often they will elect to work in their private practice from 8:00 A.M. until noon on the study club day, and so will lose only a half day from their practices. A working day is much preferred to a weekend for maximum participation in such a study club. Also, an afternoon-evening session is more economical in terms of time away from the office than is the morning-afternoon session, and also tends to be more relaxed in nature.

One of the problems facing the dental profession today is the distribution of dental services. Governments and dental governing bodies are concerned over the problem of getting dentists to leave the cities to set up practices in rural areas where dental manpower is not adequate. One of the deterrents to the move into smaller communities is the practitioner's fear of being isolated from the main body of the profession. It is much more difficult for the rural practitioner to keep up with continuing education than it is for his urban counterpart. The small community study club may be a partial answer to this problem. If some cost-sharing arrangement with governing dental bodies could further reduce the individual's costs in belonging to such a study club, the small community could then offer all of its traditional benefits, plus professional stimulation, to the interested dental practitioner.

(Continued on page 598)

POSTGRADUATE TRAINING AND GRADUATE EDUCATION IN DENTISTRY

A. H. Melcher, MDS, HDD, PhD
Toronto

The fifties and sixties were decades in which postgraduate and graduate education and training were expanded in North American dental schools. The mid-seventies appears to be an appropriate time to discuss what dental educators are attempting to achieve by instruction at the postgraduate and graduate level. This discussion assumes that the status quo will be maintained for the foreseeable future and that no radical changes will occur in specialist dental practice and in the virtual monopoly held by universities in providing formal advanced dental education. The introduction of auxiliaries may, of course, revolutionize both general and specialist dental practice, but such soothsaying is beyond the scope of this paper.

I will first define the terms "postgraduate," "graduate," "education" and "training." "Postgraduate" refers to courses of instruction leading to practice of a specialty; "graduate" refers to instruction in research methods, and usually comprises course-work plus major research leading to presentation and defence of a thesis; "education" refers to the provision of knowledge that meets the student's prime interest needs and furnishes him a wide background of related information; "training" describes instruction that enables the student to be a proficient practitioner of a specialty. There is considerable difference between the education and training of a dentist. The former is designed to produce a well-rounded scientist or academic specialized in a clinical or basic science discipline, with a depth of understanding and expertise that permits him to explore knowledge and advances in fields peripheral to his own, and to relate these to his central area of interest. By contrast, training is directed at developing a high level of vocational skill to enable the individual to achieve expertise and finesse in the practice of his chosen specialty.

I will now examine the goals of formal, advanced university instruction for dentists, and explore the type of instruction that permits attainment of these goals.

Goals of advanced university instruction for dentists

Formal advanced instruction of dentists in universities has four goals:

1. A supply of different types of specialists adequate to meet the needs of the community.

2. An adequate supply of well trained dentists to teach clinical subjects at undergraduate, postgraduate and graduate levels in schools of dentistry.
3. An adequate supply of dentists to teach basic sciences at undergraduate, postgraduate and graduate levels.
4. An adequate supply of dental scientists.

Before deciding how an individual who is to perform a particular function should be trained or educated, the nature of the function should be understood clearly. Accordingly, the functions performed by the various groups that have just been mentioned, and the training or education necessary to qualify people to perform these functions will now be described.

The dental specialist—It may be argued whether the dental specialist should merely be well trained or also highly educated for the tasks that he is required to perform in the practice of his specialty.¹ In either case, the vocational training that he receives must produce an individual who can diagnose and treat effectively all the diseases and conditions that his patients are likely to present. Consequently, training is the crucial component in instructing embryo specialists. Most specialty courses in North America have a duration of two years, except oral surgery which takes three years.² This appears to me to be too short to do justice to the three components necessary to produce a highly educated and well trained specialist, namely, clinical training, education and instruction in research method. If this is so, then training clearly must take precedence over the other two components. Education and a research component are luxuries that, in my view, can be included only if time allows once the requirements for training have been met. This is clearly a contentious point of view, but one that can be gainsaid only if reliable data can be proffered to show that a well-trained specialist is inferior in his ability to diagnose and treat patients than is his trained and educated counterpart. To this argument must be added the economic consideration that government-financed universities have an obligation to produce specialists in the shortest time and at the lowest cost compatible with achievement of competence, particularly when it is remembered that a student who embarks on postgraduate training has already had five to eight years of higher education. Let us now look at the type of curriculum that should be provided for such trainees.

As long as postgraduate students receive their instruction in dental schools, as is the case in North America but not in Great Britain,¹ the major part of the two or three year curriculum must be devoted to systematic instruction in the recognition, understanding and treatment of the diseases or conditions pertaining to their specialty, and to developing the clinical expertise necessary for the diagnosis, and the planning and execution of their treatment. To do this, it is necessary to provide, first, a body of knowledge concerning the science basic to the specialty. Some years ago, it was suggested that this could be achieved, at least in part, by a "core course" in basic science common to all specialties, followed by additional instruction in the scientific knowledge pertaining to each individual specialty.² In my own experience, "core courses" are rarely successful, as even the required basic scientific knowledge varies from specialty to specialty. If we are to train and not educate, only "relevant" knowledge should be provided. For example, a basic knowledge of plaque biology is considered essential for students of periodontics and paedodontics, but not for students of oral surgery. I am also not convinced that advanced graduate courses provided by specialist basic sciences necessarily meet the requirements of trainee clinical specialists. Again, in my experience, postgraduate students taking a crowded clinical curriculum who are, in addition, compelled to take strong and demanding courses provided by basic scientists, often have little time to devote to the necessary study of the latter. As a result, they frequently get less out of such courses than is desirable, and have difficulty in appreciating their value. The course then becomes an unpleasant burden to the student and teacher alike. It is, of course, a fact that some specialty students involved in a clinical curriculum that does allow time for their additional education, do benefit from such courses and are stimulating to teach. If the basic science instruction for each clinical specialty were organized by the clinical department itself, this problem could possibly be avoided, as the student would probably be more ready to accept it as applicable to his needs. It would be desirable for the departments concerned to call on basic scientists for assistance with seminars and lectures on topics that are deemed to be important but beyond the limit of competence of the clinical teachers. The extent of this call for assistance would vary: for example, a department of periodontics could probably cover adequately most aspects of periodontal pathology, but may seek expert assistance in the teaching of inflammation and immunology, whereas a department of oral surgery or radiology may request extensive instruction in general and oral pathology by professional pathologists.

Apart from the science basic to the practice of the specialty, it is also necessary for the members of the particular department to provide comprehensive instruction in the body of knowledge upon which the clinical practice of the specialty is built, and to coach the student in all practical procedures pertaining to the specialty. In this connection, three approaches, though obvious, seem worthy of mention. Firstly, the students should be exposed to and

instructed in a broad range of methods of treatment so that a perspective of the available possibilities, and extensive expertise, can be obtained. Secondly, clinical instruction in diagnosis and treatment planning should be provided by two or three instructors examining the patient and discussing diagnosis and treatment together, so that the student can benefit from a display of differences in opinions and from reasoned argument between acknowledged experts. Such training will obviously assist the student in developing a critical faculty, and will engender the understanding that there is no generally accepted single solution to many clinical situations and that authorities may differ in their approach to a given problem. Thirdly, all postgraduate students should be required to participate in seminars in which are discussed problems that may arise between general practitioners and specialists and between different types of specialists.² These discussions should broaden the base of specialist training.

The above approach to training may obviously have to be modified by the licensing requirements pertaining in a given jurisdiction. If some instruction in research method is mandatory, this should preferably be provided in an extra year of formal instruction. However, if it has to be included in the two-year period of training, it should consist of a closely supervised, critical and interpretive review of the literature concerning a given topic, plus instruction in methods of analysing scientific papers and designing and executing experiences. An exercise of this nature is of greater value to a student than a research project which has to be executed in a hurry and, as a consequence, is poorly done.

The Clinical teacher — There are two different types of responsibility that can be assumed by individuals aspiring to be teachers of clinical dentistry, and the required preparation is not necessarily the same for each. First, there are the responsibilities that devolve on the individual that I shall call a "clinical academic." This individual possesses a comprehensive understanding of the body of knowledge relevant to his own specialty, together with that pertaining to allied fields and the sciences basic to his own discipline. He comprehends clearly the boundaries of knowledge in his specialty, and can identify and instruct students in the areas of the unknown that have potential for elucidation and that therefore should be investigated. Significant advancement in knowledge and concept in clinical dentistry depends almost entirely on the efforts of these academics. To obtain such expertise, students should take postgraduate training in their chosen specialty plus the research training, intellectual moulding, instruction in thesis preparation, and education embodied in graduate course work that constitute the requirements for a doctorate of philosophy. Ideally, they should endeavour to take a further period of research training as post-doctoral students in a field different from that of their PhD. They should actively pursue research as an integral part of their academic duties and be perpetual students. Such individuals must aspire to be employed as

full-time or almost full-time academics. They should have a clear understanding of clinical practice, but need not, in my opinion, be superbly accomplished clinicians. It is from this group of individuals that the future heads of our clinical departments should be selected. To attain this goal, we must ensure that a sufficient number of people are appropriately trained and educated, and allowed to gain adequate academic and research experience before being called upon to assume the responsibilities and administrative load that falls on the shoulders of the chairman of a clinical department. I realize that this concept is likely to be controversial, as traditionally the heads of clinical departments are expected to be outstanding clinicians above all else. But I feel that such thinking should be questioned. Universities are first and foremost institutions where knowledge is imparted and acquired, and where new knowledge is discovered and generated. Such activity is by definition the responsibility of appropriately educated academics. Clinicians, on the other hand, have a prime responsibility to care for the health of human beings, and this too reflects the nature of their training. It is a rare and exceptional dental specialist who can attain a high degree of excellence in both fields.

Let us now look more closely at the clinical consultant. This individual should first and foremost be a superb clinician. Ideally, however, he too should receive some background education in the course work, intellectual processes and method used in scientific investigation by pursuing at least a master's degree. The working life of such an individual would be spent in teaching clinical practice and in the practice of his specialty ideally intramurally in a dental school, and, to a lesser degree, in clinical research. It could be argued that the exclusive selection of heads of clinical departments from the ranks of clinical academics makes second-grade citizens of clinical consultants. I disagree because again one must emphasize the difference but equality of the two occupations, a difference that will make the individuals pursuing the two occupations self-selective. The clinical academic, to do his work well, must devote the majority of his time to the demands of his university and of his subject and, therefore, must be the type of person who is satisfied with being a full-time or near full-time academic, and with earning a university salary. The clinical consultant, on the other hand, must of necessity practise his profession. He most likely will contribute 50-80 per cent of his time to the university, and will consequently earn substantial financial rewards from private practice in addition to his university salary.

In a department comprising clinical academics and clinical consultants, the head of the department and the other clinical academics would take responsibility for the planning of instruction at undergraduate and postgraduate level, for the provision of instruction in science basic to the specialty, for major research and for supervising research of graduate students in the department, and would contribute to clinical teaching. On the other hand, the senior clinical consultant and his associated clinical consultants would carry the major responsibility for teaching the theory and

practice of the clinical expertise required by undergraduate and postgraduate students, and would contribute to the research effort of the department and the supervision of graduate students.

Teachers of science basic to dentistry — The third group of dental teachers are the basic scientists. These individuals teach undergraduates and graduates, assist with the teaching of postgraduates, and extend knowledge in their respective areas through the pursuit of research. In some institutions the sciences basic to dentistry are taught in departments in the medical school by basic scientists having little understanding, feeling or even sympathy for the needs of the dental student. I believe that ideally, the teaching of these subjects should be in the hands of individuals possessing a DDS and a PhD taken in a relevant discipline or, alternatively, by individuals holding a PhD and no professional degree who have a particular interest in problems associated with the oral cavity and whose field of research is in this area. It may be an advantage for dentally trained basic scientists to possess clinical specialty training as well, as these individuals frequently are able to bridge the gap that occurs almost universally between clinicians and basic scientists, although they themselves may not be involved in clinical practice.

Dental scientists — Finally, we have some responsibility for the education of that rare breed of dental scientist whose prime responsibility is to dental research, and whose contribution to teaching is small. Here the prime requirement is highly sophisticated instruction in research method and intellectual activity. This must, in my view, include two years of post-doctoral study, which should be undertaken in an excellent laboratory engaged in fundamental biological research different from that pursued during doctoral training. Should these scientists have a DDS, or should they have reached PhD registration by way of a BSc? Perhaps the ideal is to have a mixture of backgrounds in any given research department or institution, and this would include scientists having specialty training in addition to a DDS.

Selection of students for postgraduate and graduate training

How should dentists be selected for further formal training in universities? Burket² has described an objective method used at the University of Pennsylvania which appears to measure academic performance and motivation. In my opinion, once the student has demonstrated a satisfactory academic standard commensurate with the requirements of the course to be pursued, motivation becomes the major criterion for selection of postgraduate and graduate students. This conclusion is spawned by our finding that a brilliant but poorly motivated individual may perform below expectation, whereas an academically adequate but well motivated individual frequently performs well above expect-

tation. But how does one measure motivation objectively? I am afraid that I do not know. The alternative is subjective measurement, which is best achieved by working with the student for three to six months; but this is an impractical tool to use in selection for postgraduate training, although a most useful method, and one that we use, for aspirants to graduate education.

One possible approach to the selection of postgraduate students is based on the method used by one department in the University of Toronto. Preliminary selection from a long list of applicants could be based on academic performance, graduate record examination results, the Princeton OAIS tests, letters of reference, and conversations with referees (the last being of great value). Once this information has been used to compile a short list of students who apparently possess sufficient intelligence and motivation to benefit from the proposed course, this short list of candidates can then be interviewed, with the primary purpose of exploring further their motivation. The composition of the interviewing committee that recommends itself to me is as follows:

1. The head of the department to whom the student is applying, who should be the chairman of the committee.
2. If the head of the department is a clinical academic, a clinical consultant from the department. If the head of the department falls more into the category of a clinical consultant, then the person in the department who most nearly approaches the qualifications required for a clinical academic.
3. One senior postgraduate student from the specialty under consideration.
4. One clinical academic from another specialty department.
5. One specialist practitioner having a part-time appointment in the department under consideration.
6. One basic scientist having an interest in the work of the department under consideration.
7. The director of postgraduate studies in the faculty.
8. One clinical psychologist whose area of interest is human motivation.

In my view, the interview should, where possible, be the principal instrument for reducing the short list to a list of acceptances. It should be planned to last about an hour and to explore as penetratingly as possible the attitudes and motivation of the applicant. The selection in most government-supported schools should perhaps aim at filling at least 75 per cent of the places with students who intend to practise their specialty and to provide a health service to the population in the jurisdiction. The remaining places should go to students exhibiting the potential to become clinical teachers. In this connection, I think that postgraduate departments have a responsibility to seek out the latter if they do not recommend themselves in order to meet our responsibility for providing teachers and research workers for the future.

In the Faculty of Dentistry, University of Toronto, graduate students are most frequently selected from interested and motivated postgraduate students. Applicants

having a DDS but having no desire for specialty training and students possessing a BSc or MSc degree are also accepted. In this faculty, students are generally registered for research degrees once they have satisfied the School of Graduate Studies and the Faculty of Dentistry of their academic prowess. In my view, all graduate students should be taken on six to twelve months' probation or, if this is not possible, registered in the first instance for an MSc and not a PhD. The reason for this suggestion arises out of the fact that although a candidate may be academically competent, he may be incompetent in the laboratory or unsuited to laboratory work, in which case the pursuit of a research degree is a waste of time. It is far better to warn the candidate of this possibility at the outset than to face the prospect of an unproductive and frustrating period in the laboratory, the outcome of which is either to push a candidate through a thesis or to see him fail. If the candidate is told that he may be dropped at any time up to a year after acceptance, following a decent period of warning, this problem can be avoided.

The reason for wishing to register a candidate for an MSc in the first instance is that in the University of Toronto, unlike some other universities, a student registered for a PhD either gets the degree or leaves empty handed. The regulations do not make provision for unsuitable candidates already registered for a PhD to re-register for an MSc. For the same reason, it is far better to start the candidate in an MSc program and to decide whether or not he is PhD material after he has worked at the bench for a reasonable period of time, than to commit student and teacher to an irreversible situation on the basis of inadequate information. If it is evident that the student is not PhD material, but can successfully complete the MSc, his education can be terminated at that point. Alternatively, if the candidate shows potential for independent research then, in this university, application can be made for re-registration as a PhD candidate without the necessity of completing the thesis for the MSc degree. In our experience, it is not only the research supervisor who makes the decision. There have been occasions when the student himself has lowered his sights after some months at the bench, having found that he is not cut out to be a research worker.

Development of academic potential in postgraduate students

I have suggested that postgraduate students should not be compelled to take courses provided by basic science departments. This could have one unwelcome effect. Many students in this faculty who initially intended only to qualify to practise their specialty, were subsequently stimulated to take graduate education and pursue an academic career as a result of close contact with basic scientists during their postgraduate training. A marked reduction in this contact could result in the future loss of this type of student to academic dentistry. However, the problem could be overcome if we modify our approach to postgraduate training by

clearly dividing the course into two separate categories, compulsory courses and elective courses, with no encroachment of the former on the latter. In this format, seven-tenths of the week would be devoted to compulsory training and the remaining three-tenths of the week to electives, the elective period being regarded as sacrosanct and not used in any way to complete compulsory assignments, particularly clinical requirements. The compulsory period would provide the student with the vocational training necessary to qualify him to practise a specialty. The elective period would be used by the student for taking credit courses in basic or social science, or for gaining special clinical experience, including that of clinical research, additional to that required for qualification as provided in the compulsory part of the curriculum. The elective time could obviously be used differently in the first and second years. Such an arrangement would allow us to cater for students of different potential, and to encourage latent potential in postgraduate students, rather than making students of all shades of interest conform to a set pattern, as is currently the case. It would allow those whose prime interest is clinical to pursue extra knowledge in that area, and those who wish a lesser or greater exposure to basic science to achieve that goal. It would also permit a student who develops an interest in laboratory research to spend time at the bench during postgraduate training, thus permitting him and his supervisor to form an opinion about his suitability before embarking on a research degree. Such a concept could require revision of the clinical requirements in established courses, and perhaps an increase in the residence requirement of some. To be successful, the program would require the commitment of the heads of clinical departments to the absolute independence of the elective period from the required curriculum, and to the independence of the student in selecting electives. Obviously, a minimum number of elective credits would be required for graduation. Such a model could conceivably also be applied to undergraduate dental education.

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1 Kramer, I. R. H. Future trends in postgraduate dental education. *Int Dent J* 18:834, 1968.

2 Burket, L. W. Advanced dental education. *J Dent Educ* 33:537, 1969.

Turn to page 596 for the comments of three prominent dental educators on Dr. Melcher's article.



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COMMENTS ON DR. MELCHER'S ARTICLE

Because of the significance of Dr. Melcher's topic to dental education and health care delivery, three prominent dental educators – G. H. Sperber, professor of oral biology, Faculty of Dentistry, University of Alberta; Jean-Paul Lussier, dean, Faculté de médecine dentaire, Université de Montréal; and R. E. Jordan, professor of restorative dentistry, Faculty of Dentistry, University of Western Ontario – were invited to comment on the paper. Herewith their observations:

The sharp distinction that Dr. Melcher draws between the education and training of a dentist (and specialist) is unfortunate. One would hope in a profession that training in practice expertise is a component of education, and that the attainment and continuing acquisition of understanding of background knowledge is part and parcel of maintaining practice expertise. In other words, to be well trained, one must be well educated, with the obligation implied in the latter of continuing study and practice. In this context, may I quote James A. Perkins in *The University in Transition*:

“Knowledge acquired must be transmitted or it dies. Knowledge acquired and transmitted must be used or it becomes sterile and inert. Even more, the chemistry of knowledge is such that the very progress of transmission together with the discipline of application, stimulates and guides those who work at the frontiers of knowledge. Knowledge is, therefore, in many respects a living thing — it grows, it changes and its various parts are replaced as they become obsolete.”

I would regret reducing the exposure of postgraduate students to the basic sciences relevant to their specialty as much as Dr. Melcher suggests, but am aware of the problem of time available for a fully desirable exposure. It consequently devolves upon the basic science teacher to make his science as attractive and relevant to the clinicians as possible, which I know from experience is an uphill job!

In general, I am in agreement with the remainder of Dr. Melcher's observations, although I feel that the role of auxiliaries will play a larger part in dental postgraduate education than Dr. Melcher has acknowledged.

G. H. Sperber

The dental faculties, the community of dental researchers and the dental profession as a whole should feel proud and grateful to have such leaders as Dr. Melcher who can, with elegance and resoluteness, bring forth a most comprehensive, lucid, transparent and rational statement on postgraduate training and graduate education in dentistry. The author of this statement must be an educator of long experience and a researcher of high calibre, since it takes both to fully evaluate the true and fundamental dimensions of higher education in dentistry and to unmask, without indulgence, the limitations of the practices that the dental schools have implemented in the past decades.

After reading this paper, I found no points with which I could come in disagreement. As I stand, my role is one of reinforcement with respect to some of the points which appear to be most important to me.

In his introduction, Dr. Melcher made it clear that the words “training” and “education” are not synonymous and can not be used indiscriminately. It is very appropriate that he does so. For not taking into account that “training” and “education” are not always convergent (but not necessarily divergent) and consequently that their objectives are not interchangeable, especially in our day and age where the Leonardo da Vinci type of professional is a rarity, if not an impossibility, many programs have been drafted with more ambition than realism. The result of which was an impressive mass of materials to cover. Nowhere was the promise that this mass would be converted to actual or potential energy.

I concur with Dr. Melcher that the goals of “advanced university instruction for dentists” need to be more accurately defined. The four types of programs he is proposing should be taken as specific models, so that all existing or future programs have a definite correspondence with one of these types.

I am most pleased to see Dr. Melcher stating so clearly that the research components in specialty training programs appear too often as luxurious and cumbersome trimmings rather than basic educational tools. No one should be offended by it. Academic snobism and excessive reaction to the too pragmatic content of the postgraduate programs are some of the reasons why abuses took place in relation to scientific research in this area of advanced dental instruction.

I am equally pleased that the "core courses" for all seasons have not escaped Dr. Melcher's severe judgement. These hotchpotches have one main feature which is to be broad and shallow; usually, they have not enough content to turn the students on but surely enough to provoke their complaints. Core courses can hardly be in harmony with the actual trend that instruction should be tailored to the student's needs, especially at the level of specialty training and graduate education.

The author should be commended for neatly underlining the basics of a clinical practice in a specialty and making a particular point of the problems arising between general practitioners and specialists. I hope that his advice will be well taken and that some of the misconceptions which have been deeply rooted in the past and still persist will finally be eliminated.

Perhaps the most controversial point which may arise from this statement is the matter of the clinical teacher's qualifications in his own clinical field. Dr. Melcher's position, I presume, is not to decrease the importance of the clinical competence among the qualifications of the clinical teacher but to stress the importance of his competency and dedication to contribute to research in his field and to gain his reputation through this channel rather than through recognition as a virtuoso in performing clinical procedures. I know there will be some disagreement among the clinical teachers on this matter, but I share Dr. Melcher's opinion. It is very well known that clinical dental research has not kept pace with fundamental research in dental fields as well as other health fields mainly because clinical teachers were or still are solely practice oriented. Most will agree that this shift of orientation is not an easy one to achieve.

I hope Dr. Melcher's views on the selection of students and their development in postgraduate and graduate programs will rightly impress those who have the responsibility of these operations in the Canadian dental faculties. There is ample food for thought in the last paragraphs of his paper but I leave to the dental academics the duty to explore for their profit the author's comments and his very stimulating approach on how to improve the efforts of our universities in providing advanced instruction to postgraduate and graduate dental students.

Jean-Paul Lussier

Should the purpose of submitting Dr. Melcher's paper to other Canadian faculty members for comment have been to stimulate controversial reaction, then this has certainly failed in the present instance, for I find myself in almost universal agreement with Dr. Melcher's philosophy, with only minor qualifications.

An entirely valid differentiation is made between "education" and "training", the former connoting a primary scientific or academic orientation, the latter involving a primary "vocational skill" approach. Whatever the intended goal of graduate and/or postgraduate dental educa-

tion programs however, to produce specialists, clinical or basic science teachers or dental scientists, then surely the instructional process must be based upon an *admixture* of the education-training components with neither being fully operational on the one hand, nor excluded on the other. For example, Dr. Melcher indicates quite justifiably that in instructing dental specialists, *training* is the crucial component. Indeed it is, and I unequivocally agree that the so-called "vocational training" aspect must clearly take precedence over the "educational" and research components of *specialist* instruction. I find it most difficult to agree with the statement that the "education and research components are luxuries that . . . can be included only if time allows once the requirements for training have been met". In my opinion, it is absolutely essential that specialty training programs include at the very least *minor* educative involvement relative to research and scientific methodology even if such involvement compromises the training aspect of the instructional format. My reasoning in this regard is based on the assumption that further "training" in all specialties occurs naturally through continuing involvement in treatment procedures. If scientific and research methodology is totally ignored in the process of training a specialist, then regardless of the extent of his future clinical involvement, he will find it an impossible task to gain any degree of sophistication in this important area. No matter how extensive the demands of specialist training in a program of limited duration (i.e. two years), the academic and research components must not be compromised to the point of exclusion, otherwise how can the specialist possibly be expected to assess, evaluate and apply newly introduced knowledge in his field of expertise? In this context the concept that a specialist requires "training" only, and not "education", is erroneous.

The instructional difference between a clinical academic and a specialist can hardly be absolute in nature and involve pure "training" on the one hand versus pure "education" on the other, but surely must involve quantitative differences in the *degree* of involvement in each of the "training" and "education" categories. In the training of a specialist, I am personally of the opinion then, that some instruction in research method should be mandatory regardless of the specialty. There are few, if any, specialists who are not called upon to periodically review, interpret, evaluate and perform newly introduced advancements in their particular field of interest. In order to adequately prepare him to do so on a scientific basis, some formal education relative to research methodology and design, biostatistics and scientific writing is a mandatory feature of any specialist training program. To deny the specialist this aspect of graduate dental education is to infer that he is simply an expert practising clinician, devoid of research awareness and incapable (by reason of his limited training) of contribution to the scientific literature — obviously an erroneous concept.

Dr. Melcher suggests that "core courses" are rarely successful in specialty training as even the required basic

scientific knowledge varies from specialty to specialty. Accordingly, he proposes that basic science instruction for each clinical specialty be organized by the clinical department itself. The point is well taken, for there is no question but that all too often specialty students are "squeezed" into existing core courses for no other reason than convenience. As a result, the essential "training" aspects of the specialty program may well be compromised in favour of a more esoteric "educational" involvement. Core courses must be very carefully selected and planned to avoid this pitfall and, as Dr. Melcher suggests, clinical departments themselves must be more prepared to accept responsibility for basic science instruction relevant to their own disciplines rather than "farming it out" by means of involvement in highly generalized core courses which may provide little specificity of interest.

One of the most prevalent fallacies in dental education is the oft-repeated view that heads of clinical departments must be essentially outstanding clinicians above all else. Experience has shown that in some cases the outstanding clinician may be the least qualified to head a department should clinical expertise be his only attribute. I am in wholehearted agreement with Dr. Melcher's identification of the *clinical academic* in this regard. The clinical academic, with combined basic science, research and clinical capabilities is most certainly best prepared for the assumption of major responsibilities relative to the development of clinical departments and it is he who must obviously assume the dominant role. Whether or not this person holds a Ph.D. is irrelevant in my view. His *essential* qualifications are interest, knowledge and active involvement in both research and clinical activities. Unfortunately, the clinical academic is a rare species indeed. His extremely limited availability however, should not contraindicate the fact that by reason of his broad qualifications he is potentially an ideal clinical department chairman.

The *clinical consultant* as identified by Dr. Melcher is a distinct species of clinical teacher with a "major" in clinical expertise and a "minor" in research and science education. This "superb clinician" with a scientific investigatory background is, in my opinion, at least as qualified

to assume departmental chairmanship responsibilities as is the clinical academic. In the first place, this type of individual is more readily available in the academic stream, and, in addition, by reason of his dual clinical-research background, is eminently qualified for departmental leadership notwithstanding his lack of a Ph.D.

Dr. Melcher has identified quite correctly that one of the major problems in graduate (as well as undergraduate) dental education is the fact that basic sciences are often taught by basic scientists having little understanding, feeling or even sympathy for the needs of the dental student. Accordingly, he suggests that ideally, basic science subjects should be taught by either the double degree academic (i.e. D.D.S. and Ph.D.) or by a Ph.D with a particular interest in dental problems. I could not agree more, but alas, again the extremely limited availability of either species is a highly practical problem for which few, if any, schools have found an answer. It is a fact of life that the "action" in basic science disciplines most frequently involves cancer, cardiovascular, pulmonary, renal and neurophysiological research. The difficulties in attracting first rate individuals to *caries and periodontal* research activity are not insurmountable but nevertheless self-evident. One answer might lie in the concept of diverting bright and well-motivated dental students to basic science research activity very early in their undergraduate years. The undergraduate curriculum would most certainly require "custom redesigning" for this purpose.

One final point made by Dr. Melcher which is likely his most important, involves *motivation*. In the selection of graduate, postgraduate, and *undergraduate* dental students, motivation is unquestionably the major criterion. Unfortunately, it is *the* most difficult parameter to measure and herein lies one of the major problems in the selection of dental students at both undergraduate and graduate levels.

I wish to congratulate Dr. Melcher on a superb paper. It should be considered essential reading for anyone involved in postgraduate or graduate dental education.

R. E. Jordan

Study club . . .

Continued from page 590

Summary

Any area with a few interested dentists can start and successfully run a study club. Only one person is needed to supply the impetus. A president and a secretary can be elected at the first meeting. Procuring a mentor is the second task, but once the new group can send forth a delegate with details to offer a prospective mentor, the study club is on its way. Such clubs can be an excellent vehicle for continuing education in a society where mandatory refresher courses are fast becoming a reality.

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ANNUAL INDEX

Volume 42, 1976

A

AGED

Martinello, B.P. — Oral health assessment of residents of a Chatham, Ontario home for the aged — 405

ANAESTHESIA AND ANAESTHETICS, GENERAL

Munroe, C.O. — Provision of a general anaesthetic service for restorative dentistry — 354

Precious, D.S. — Succinylcholine-induced apnoea — 358

ANALGESIA

CODEINE

Daigle, I., Elie, R., Gareau, J. and Chesnay, G. — Comparison of the effects of floctafenine and codeine on postsurgical pain — 301

FLOCTAFENINE

Daigle, I., Elie, R., Gareau, J. and Chesnay, G. — Comparison of the effects of floctafenine and codeine on postsurgical pain — 301

ANDERSON, D.L. AND SZAINWALD, K.S. — Influence of dental status on deaths resulting from food asphyxia — 265

ANTIBIOTICS

Munroe, C.O. and Lazarus, T.L. — Predisposing conditions of infective endocarditis — 483

Munroe, C.O. and Lazarus, T.L. — Prevention of infective endocarditis — 490

APNOEA

Precious, D.S. — Succinylcholine-induced apnoea — 358

ASPHYXIA

Anderson, D.L. and Szainwald, K.S. — Influence of dental status on deaths resulting from food asphyxia — 265

B

BANTING, D.W. AND ELLEN, R.P. — Carious lesions on the roots of

teeth: a review for the general practitioner — 496

BLOOD

PRESSURE

Silverberg, D.S. — The dentist's role in hypertension — 549

BOOTH, D.F., KILGORE, T.B. AND HERSH, H. — See Kilgore, T.B.

BROWN, A.A. — Improving your relationship with your pharmacist — 311

C

CANADIAN DENTAL ASSOCIATION

Balancing the budget (Editorial) — 330

CDA Council Report: Uniform coding system and standard claim form — 122

CDA Task Force on continuing education — 81

ANNUAL MEETING

Conventions — what, why and for whom? (Editorial) — 370

CANADIAN FUND FOR DENTAL EDUCATION

CFDE 1975 Progress Report — 177

CFDE — A helping hand — 444

CANCER

ORAL

Lavelle, C.L.B. — Prevention of oral infections in patients receiving cancer therapy — 551

CARDIAC DISEASE

Munro, C.O. and Lazarus, T.L. — Predisposing conditions of infective endocarditis — 483

Munro, C.O. and Lazarus, T.L. — Prevention of infective endocarditis — 490

CARIES, DENTAL

AETIOLOGY AND CONTROL

Banting, D.W. and Ellen, R.P. — Carious lesions on the roots of teeth: A review for the general practitioner — 496

Leake, J.L. and Martinello, B.P.

— A four year evaluation of a fissure sealant in a public health setting — 409

IN CHILDREN

Leake, J.L. and Martinello, B.P. — A four year evaluation of a fissure sealant in a public health setting — 409

ROOT SURFACE

Banting, D.W. and Ellen, R.P. — Carious lesions on the roots of teeth: A review for the general practitioner — 496

CEMENTUM

Chapnick, L.A. and Main, J.H.P. — Cementum in a cleidocranial dysostosis — 139

CHAPNICK, L.A. AND MAIN, J.H.P. — Cementum in cleidocranial dysostosis — 139

CHEMOTHERAPY

Munroe, C.O. and Lazarus, T.L. — Prevention of infective endocarditis — 490

CHESNAY, G., DAIGLE, I., ELIE, R. AND GAREAU, J. — See Daigle, I.

CHEUNG, D.K. AND SIMPSON — See Simpson, W.J.

CHILDREN

DENTISTRY FOR

Dungy, A.F. — General dental care of the cleft palate patient — 356

Hargreaves, J.A. — Preventive dentistry for handicapped children — 352

Leake, J.L. and Martinello, B.P. — A four year evaluation of a fissure sealant in a public health setting — 409

PRESCHOOL

Simpson, W.J. and Cheung, D.K. — The developing occlusion of infants, related feeding methods and oral habits. Part I: Methodology and results at 4 and 8 months — 124

Simpson, W.J. and Cheung, D.K. — Developing infant occlusion, related feeding methods and oral habits. Part II: Discussion and conclusion — 135

CLEIDOCRANIAL DYSOSTOSIS

Chapnick, L.A. and Main, J.H.P. — Cementum in cleidocranial dysostosis — 139

CORRESPONDENCE

Bachinsky, D.J. — Junk foods in school vending machines — 570

Barolet, R.Y. — Metric confusion — 6

Basaraba, Neil — Author's comments on article, "Principles of occlusion in periodontics" — 106
 Bowie, J.W. — Applied Health Sciences Inc. — 161
 Brooke, R.I. — Infective endocarditis — 568
 Brown, A.A. — Legal requirements for sale of fluoride — 468
 Covit, Clyde — QDSA requests correction — 288
 Deacon, W.C. — DDS for Executive Director? — 234
 Deakin, Phyllis — American Medical Association's pamphlet on fluoridation — 468
 Gaum, Lawrence I. — Succinylcholine-induced apnoea — 468
 Jones, L.E. — Metric confusion — 6
 Lavelle, C.L.B. — Oral pathology — 568
 Purves, J.D. — Executive Director's position — 229
 Rife, D.L. — Executive Director's position: Executive Council reply — 229
 Rife, D.L. — DDS for Executive Director? Executive Council reply — 234
 Roach, K.L. — Forum for anti-fluoridationists? — 570
 Schumacher, E. — Dentifrices and mouthwashes — 288
 Spouge, J.D. — Radiologic consulting service at UBC — 385
 Stephens, Russell G. — Occlusion in periodontics — 106
 Webb, T.C. — Applied Health Sciences Inc. — 161
 Worth, Harry M. — Radiologic consulting service at UBC — 385
 Zulqar-nain, B.J. — Editor's comments on article "Principles of occlusion" — 106

CYSTS

Goodin, I.F. and Frost, L.J. — Management of an odontogenic keratocyst: Report of a case — 144

CLEFT PALATE AND CLEFT LIP ORTHODONTIC TREATMENT

Dungy, A.F. — General dental care of the cleft palate patient — 356

CONDYLE

Kilgore, T.B., Booth, D.F. and Hersh, H. — Auditory canal haemorrhage with contralateral condylar fracture: report of a case — 455

D

DAIGLE, I., ELIE, R., GAREAU, J. AND CHESNAY, G. — Comparison of the effects of floctafenine and codeine on postsurgical pain — 301

DEATHS

Anderson, H. Ross — 114
 Bancroft, Earl — 14
 Bateman, Harry Robinson — 14
 Beland, Gustave — 172
 Billings, Maurice Roger — 380
 Blackwell, Roy W. — 62
 Boisclair, Donat — 62
 Bonnell, Hugh Frederick — 172
 Booth, Allen — 62
 Breton, Louis-Marie — 62
 Brick, Michael G. — 14
 Campbell, Edwin Harold — 244
 Carty, Harry — 530
 Chung, Tony Y. — 114
 Clark, Wilfrid Daniel — 344
 Clark, W. Lorne — 114
 Comeau, Lin — 114
 Craig, John Joshua — 62
 Crowhurst, Sidney Edward — 344
 Dawson, Delmar G. — 480
 Desroches, Emile — 530
 Durant, W. Lorne — 172
 Eaton, K.B. — 578
 Edwards, Reginald William — 172
 Ehler, Rex Phillip — 172
 Findlay, Robert Murray — 62
 Fraser, James Ernest — 244
 Fraser, William Norman — 480
 French, George Ernest — 244
 Gale, Harry Arnold — 172
 Giguere, Adelard — 244
 Gruer, Willard Paisley — 114
 Hamel, Maurice — 530
 Histrop, Arthur Ernest — 114
 Husolo, H. — 530
 Janes, Lorne Vernon — 14
 Jarvis, Albert — 62
 Johnston, Joseph Hawley — 294
 Keenan, M. Vincent — 344
 Kennedy, Charles Judd — 344
 Kerr, Roy Douglas — 14
 King, George Alfred — 244
 Langtry, John Harold — 244
 Laurin, Carroll Edouard — 244
 Lavoie, Francis Benoit — 14
 Lessard, J. — 62
 Macdonald, Thomas Forrester — 578
 MacIntosh, George K. — 114
 MacNeill, Bruce Crawford — 172
 Macneil, William Hamilton — 530
 McBroom, Robert Elwood — 380

McCool, Leonard Hugh — 114
 McKellar, Hugh Ellar — 380
 McLeod, Cecil Donald — 480
 McLeod, Douglas J. — 530
 McPhee, Donald Snider — 294
 Marchand, Jacques L. — 530
 Massicotte, Auguste — 114
 Miles, Rollie Lee — 344
 Milne, James Copland — 294
 Montgomery, Garnet Elliott H. — 344
 Moore, William Robert — 244
 Moreau, Arthur — 62
 Morrison, Reeve Wilson — 172
 Munro, Archibald Donald C. — 62
 O'Neill, A.J. — 578
 Parker, Ralph T. — 480
 Parsons, Leslie Alexander W. — 439
 Paterson, Jesse George — 62
 Pattison, Lorne Russell — 380
 Potter, Wilfred Albert — 439
 Race, Wilfrid Watson — 244
 Reichman, Preston William — 294
 Reynolds, Leeland Almon — 380
 Ringuet, Lucien — 244
 Shand, William Alvin — 62
 Shapera, Earl Saul — 114
 Simon, Saul — 578
 Slade, Harry Arthur — 294
 Smith, N.C. — 439
 Soules, Cecil — 439
 Stedman, Lloyd Reuben — 294
 Summers, Jack — 62
 Tupper, James Aubrey — 380
 Turner, John Whitlock — 480
 Vrbancic, John Ivan — 530
 Williams, Randel M. — 114
 Wright, James Ewart — 114
 Wroblewski, Vincent P.A. — 344
 Young, William Henry — 294

DENTISTRY

IN CANADA

Harrop, T.J. and Mackenzie, R.S. — The future of dental education in Canada — 69

IN ONTARIO

Martinello, B.P. — Oral health assessment of residents of a Chatham, Ontario home for the aged — 405

PRACTICE

Fleming, W.J. and Ellis, R.L. — The changing emphasis on practice administration — 199
 Heffernan, Robert F. — The dentist as business administrator — 201
 Link, K. Diane — Managing a dental practice — 203

Organ, G. and Main, J.H.P. — Utilization of an oral pathology diagnostic service by dentists — 555

Practice Management — 164

Reid, A.E. — The nature of the practice management problem — 190

PREVENTIVE

Hargreaves, J.A. — Preventive dentistry for handicapped children — 352

Lavelle, C.L.B. — Prevention of oral cancer in patients receiving cancer therapy — 551

Self-interested education in prevention (Editorial) — 56

DENTISTS

IN HOSPITALS

Munroe, C.O. — Provision of a general anaesthetic service for restorative dentistry — 354

PERSONALITY

Marshall, T.D. — Personal growth — 205

DENTURES

IMMEDIATE

Signer, D.J. — A simplified immediate maxillary denture — 457

PARTIAL

Harrop, J. and Javid, N. — Reciprocal arms of direct retainers in removable partial dentures — 208

RETENTION

Harrop, J. and Javid, N. — Reciprocal arms of direct retainers in removable partial dentures — 208

DIAGNOSIS

ORAL

Organ, G. and Main, J.H.P. — Utilization of an oral pathology diagnostic service by dentists — 555

DOBBS, T.M. AND DUPERON — See Duperon, D.F.

DRY SOCKET

Rozanis, J., Schofield, Ian and Kogon, S.L. — Simulated dry socket: delayed healing of extraction wounds in rats — 41

DUNGY, A.F. — General dental care of the cleft palate patient — 356

DUPERON, D.F. AND DOBBS, T.M. — Dental care for patients with congenital haemorrhagic disorders — 269

E

ECONOMICS

Johnston, D.J. — Inflation — a tax lawyer's viewpoint — 27

DENTAL

Fleming, W.J. and Ellis, R.L. — The changing emphasis on practice administration — 199

Heffernan, Robert F. — The dentist as business administrator — 201

Link, K. Diane — Managing a dental practice — 203

Practice management (Editorial) — 164

The promise of our good fortune (Editorial) — 426

Reid, A.E. — The nature of the practice management problem — 190

EDITORIALS

New Year's message from the President — 8

Self-interested education in prevention — 56

Practice management — 164

Balancing the budget — 330

Conventions — what, why and for whom? — 370

The promise of our own good fortune — 426

EDUCATION, DENTAL

The promise of our own good fortune (Editorial) — 426

Dimitri, Marjorie: CFDE — a helping hand — 444

Fleming, W.J. and Ellis, R.L. — The changing emphasis on practice administration — 199

Harrop, T.J. and Mackenzie, R.S. — The future of dental education in Canada — 69

Heffernan, Robert F. — The dentist as business administrator — 201

Jordan, R.E. — Comments on paper by A.H. Melcher — 597

Link, K. Diane — Managing a dental practice — 203

Lussier, Jean-Paul — Comments on paper by A.H. Melcher — 596

Marshall, T.D. — Personal growth — 205

Melcher, A.H. — Postgraduate training and graduate education in dentistry — 591

Mutter, G. — Effects of teacher training — 78

Practice management (Editorial) — 164

Proctor, D.B. — NDEB evaluates four years' experience — 20

Reid, A.E. — The nature of the practice management problem — 190

Sperber, G.H. — Comments on paper by A.H. Melcher — 596

OF HYGIENISTS

Dimitri, Marjorie — CFDE — A helping hand — 444

CONTINUING

CDA Task Force on continuing education — 81

Jones, W.A. — The study club as a means of continuing education — 589

POSTGRADUATE

Melcher, A.H. — Postgraduate training and graduate education in dentistry — 591

TEACHING METHODS

Melcher, A.H. — Postgraduate training and graduate education in dentistry — 591

EDUCATION OF PUBLIC

Self interested education in prevention (Editorial) — 56

ELIE, R., GAREAU, J., CHESNAY, G. AND DAIGLE, I. — See Daigle.

ELLEN, R.P. AND BANTING, D.W. — See Banting

ELLIS, R.L. AND FLEMING, W.J. — See Fleming

ENDODONTICS

Turner, P.S. — Periodontal-endodontic lesions and their management — 506

ERYTHROMYCIN

Munroe, C.O. and Lazarus, T.L. — Prevention of infective endocarditis — 490

EXAMINING BOARD

NATIONAL DENTAL EXAMINING BOARD

Proctor, D.B. — NDEB evaluates four years' experience — 20

F

FLEMING, W.J. AND ELLIS, R.L. — The changing emphasis on practice administration — 199

FOCAL INFECTION

HEART DISEASE

Munroe, C.O. and Lazarus, T.L. — Predisposing conditions of infective endocarditis — 483

Munroe, C.O. and Lazarus, T.L. — Prevention of infective endocarditis — 490

FROST, L.J. AND GOODIN, I.F. — See Goodin

FRYDMAN, A. — Intradermal naevus: Report of a case — 92

FRACTURES

JAW

Kilgore, T.B., Booth, D.F. and

Hersh, H. — Auditory canal haemorrhage with contralateral condylar fracture: report of a case — 455

G

GAREAU, J., CHESNAY, G., DAIGLE, I. AND ELIE, R. — See Daigle

GERIATRICS

Martinello, B.P. — Oral health assessment of residents of a Chatham, Ontario home for the aged — 405

GERODONTIA

Martinello, B.P. — Oral health assessment of residents of a Chatham, Ontario home for the aged — 405

GOODIN, I.F. AND FROST, L.J. — Management of an odontogenic keratocyst: Report of a case — 144

H

HAEMOPHILIA

Duperon, D.F. and Dobbs, T.M. — Dental care for patients with congenital haemorrhagic disorders — 269

HAEMORRHAGE

CONTROL

Duperon, D.F. and Dobbs, T.M. — Dental care for patients with congenital haemorrhagic disorders — 269

HANDICAPPED

DENTISTRY FOR

Dungy, A.F. — General dental care of the cleft palate patient — 356

Hargreaves, J.A. — Preventive dentistry for handicapped children — 352

Kamen, S. — History of dentistry for the handicapped: Past, present and future — 347

Munroe, C.O. — Provision of a general anaesthetic service for restorative dentistry — 354

HARGREAVES, J.A. — Preventive dentistry for handicapped children — 352

HARROP, J. AND JAVID, NIKZAD — Reciprocal arms of direct retainers in removable partial dentures — 208

HEART DISEASE

FOCAL INFECTION

Munroe, C.O. and Lazarus, T.L. — Predisposing conditions of infective endocarditis — 483

Munroe, C.O. and Lazarus, T.L. — Prevention of infective endocarditis — 490

HEFFERNAN, ROBERT F. — The dentist as business administrator — 201

HEMANGIOMA

Frydman, A. — Intradermal naevus: Report of a case — 92

HERSH, H., KILGORE, T.B. AND BOOTH, D.F. — See Kilgore, T.B.

HOSPITALS

Munroe, C.O. — Provision of a general anaesthetic service for restorative dentistry — 354

HYGIENISTS, DENTAL

Dimitri, Marjorie: CFDE — A helping hand — 444

HYPERTENSION

Silverberg, D.S. — The dentist's role in hypertension — 549

I

ILL AND AGED

DENTISTRY FOR

Martinello, B.P. — Oral health assessment of residents of a Chatham, Ontario home for the aged — 405

IMMEDIATE DENTURES

Signer, D.J. — A simplified immediate maxillary denture — 457

INCOME TAX

Federal income tax returns by dentists — 87

INFECTION

Lavelle, C.L.B. — Prevention of oral infections in patients receiving cancer therapy — 551

INFLATION

Johnston, Donald J. — How does the professional cope with inflation? A tax lawyer's viewpoint — 27

INSTRUMENTS AND APPLIANCES

Harrop, J. and Javid, N. — Reciprocal arms of direct retainers in removable partial dentures — 208

J

JOHNSON, R.H. — The whys and wherefores of periodontal surgery — 31

JOHNSTON, DONALD J. — How does the professional cope with inflation? — 27

JONES, W.A. — The study club as a means of continuing education — 589

JORDAN, R.E. — Comments on paper by A.H. Melcher — 597

JOURNALISM, DENTAL

Balancing the budget (Editorial) — 330

K

KAMEN, S. — History of dentistry for the handicapped: past, present and future — 347

KERATOCYST

Goodin, I.F. and Frost, L.J. — Management of an odontogenic keratocyst: Report of a case — 144

KILGORE, T.B., BOOTH, D.F. AND HERSH, H. — Auditory canal haemorrhage with contralateral condylar fracture: Report of a case — 455

KOGON, S.L., ROZANIS, J. AND SCHOFIELD, I. — See Schofield

L

LAVELLE, C.L.B. — Prevention of oral infections in patients receiving cancer therapy — 551

LAZARUS, T.L. — See Munroe

LEAKE, J.L. AND MARTINELLO, B.P. — A four year evaluation of a fissure sealant in a public health setting — 409

LEUKOPLAKIA

Frydman, A. — Intradermal naevus: Report of a case — 92

LINK, K. DIANE — Managing a dental practice — 203

LUSSIER, JEAN-PAUL — Comments on paper by A.H. Melcher — 596

M

MACKENZIE, R.S. AND HARROP, T.J. — See Harrop

MAIN, J.H.P. AND CHAPNICK, L.A. — See Chapnick

MAIN, J.H.P. AND ORGAN, G. — See Organ

MANDIBLE AND MAXILLA FRACTURES

Kilgore, T.B., Booth, D.F. and Hersh, H. — Auditory canal haemorrhage with contralateral condylar fracture: report of a case — 455

MARSHALL, T.D. — Personal growth — 205

MARTINELLO, B.P. — Oral health assessment of residents of a Chatham, Ontario home for the aged — 405

MARTINELLO, B.P. AND LEAKE, J.L. — See Leake

MEDICINE

ORAL

Anderson, D.L. and Szainwald, K.S. — Influence of dental status on deaths resulting from food asphyxia — 265

Duperon, D.F. and Dobbs, T.M. — Dental care for patients with congenital haemorrhagic disorders — 269

MELCHER, A.H. — Postgraduate training and graduate education in dentistry — 591

MEMORIAM, IN

Bateman, Harry — 14

Brick, Michael — 14

Bulyea, Harry E. — 172

Clark, Wilfrid Daniel — 345

Craigie, Lawrence Glenn — 439

Janes, Lorne — 14

Keenan, Vincent — 345

MOUTH LESIONS

Goodin, I.F. and Frost, L.J. — Management of an odontogenic keratocyst: Report of a case — 144

MUNROE, C.O. — Provision of a general anaesthetic service for restorative dentistry — 354

MUNROE, C.O. AND LAZARUS, T.L. — Predisposing conditions of infective endocarditis — 483

MUNROE, C.O. AND LAZARUS, T.L. — Prevention of infective endocarditis — 490

MUSCLE RELAXANTS

Precious, D.S. — Succinylcholine-induced apnoea — 358

MUTTER, G. — Effects of teacher training — 78

N

NAEVUS

Frydman, A. — Intradermal naevus: Report of a case — 92

NATIONAL DENTAL EXAMINING BOARD

Proctor, D.B. — NDEB evaluates four years' experience — 20

O

OCCLUSION

INFANT

Simpson, W.J. and Cheung, D.K. — Developing infant occlusion, related feeding methods and oral habits. Part I: Methodology and results at 4 and 8 months — 124

Simpson, W.J. and Cheung, D.K. — Developing infant occlusion, related feeding methods and oral habits. Part II: Discussion and conclusions — 135

OISHI, T.T. AND PARFITT, G.J. — Effects of varying peak kilovoltage filtration on diagnostic dental radiographs — 449

ORAL MEDICINE

Anderson, D.L. and Szainwald, K.S. — Influence of dental status on deaths resulting from food asphyxia — 265

Duperon, D.F. and Dobbs, T.M. — Dental care for patients with congenital haemorrhagic disorders — 269

ORAL PATHOLOGY

Organ, G. and Main, J.H.P. — Utilization of an oral pathology diagnostic service by dentists — 555

Chapnick, L.A. and Main, J.H.P. — Cementum in cleidocranial dysostosis — 139

Goodin, I.F. and Frost, L.J. — Management of an odontogenic keratocyst: Report of a case — 144

ORAL SURGERY

Daigle, I., Elie, R., Gareau, J. and Chesnay, G. — Comparison of the effects of floctafenine and codeine on postsurgical pain — 301

ORGAN, G. AND MAIN, J.H.P. — Utilization of an oral pathology diagnostic service by dentists — 555

ORGANIZATIONS, DENTAL

Conventions — what, why and for whom? (Editorial) — 370

ORTHODONTIC TREATMENT

CLEFT PALATE AND CLEFT LIP

Dungy, A.F. — General dental care of the cleft palate patient — 356

P

PAEDODONTICS

Dungy, A.F. — General dental care of the cleft palate patient — 356

Hargreaves, J.A. — Preventive dentistry for handicapped children — 352

Simpson, W.J. and Cheung, D.K. — Developing infant occlusion, related feeding methods and oral habits. Part I: Methodology and

results at 4 and 8 months — 124

Simpson, W.J. and Cheung, D.K. — Developing infant occlusion, related feeding methods and oral habits. Part II: Discussion and conclusion — 135

PAIN

POSTOPERATIVE

Daigle, I., Elie, R., Gareau, J. and Chesnay, G. — Comparison of the effects of floctafenine and codeine on postsurgical pain — 301

CONTROL

Daigle, I., Elie, R., Gareau, J. and Chesnay, G. — Comparison of the effects of floctafenine and codeine on postsurgical pain — 301

PALATE

CLEFT

Dungy, A.F. — General dental care of the cleft palate patient — 356

PARFITT, G.J. — See Oishi, T.T.

PATHOLOGY, ORAL

Organ, G. and Main, J.H.P. — Utilization of an oral pathology diagnostic service by dentists — 555

Chapnick, L.A. and Main, J.H.P. — Cementum in cleidocranial dysostosis — 139

Goodin, I.F. and Frost, L.J. — Management of an odontogenic keratocyst: Report of a case — 144

PENICILLIN

Munroe, C.O. and Lazarus, T.L. — Prevention of infective endocarditis — 490

PERIODONTAL DISEASE

AETIOLOGY AND RELATION

TO SYSTEMIC CONDITIONS

Turner, P.S. — Periodontal-endodontic lesions and their management — 506

TREATMENT, SURGICAL

Turner, P.S. — Periodontal-endodontic lesions and their management — 506

Johnson, R.H. — The whys and wherefores of periodontal surgery — 31

Stakiw, J. — Wound healing and its periodontal implications — 35

PERIODONTICS

Johnson, R.H. — The whys and wherefores of periodontal surgery — 31

Stakiw, J. — Wound healing and its periodontal implications — 35

PHARMACY

Brown, A.A. — Improving your relationship with your pharmacist — 311

PRACTICE, DENTAL

Fleming, W.J. and Ellis, R.L. — The changing emphasis on practice administration — 199
Heffernan, Robert F. — The dentist as business administrator — 201
Link, K. Diane — Managing a dental practice — 203
Practice management — 164
Reid, A.E. — The nature of the practice management problem — 190

PRECIOUS, D.S. — Succinylcholine-induced apnoea — 358

PREVENTIVE DENTISTRY

Lavelle, C.L.B. — Prevention of oral cancer in patients receiving cancer therapy — 551
Hargreaves, J.A. — Preventive dentistry for handicapped children — 352

EDUCATION

Self-interested education in prevention (Editorial) — 56

PROCTOR, D.B. — NDEB evaluates four years' experience — 20

PROSTHETIC DENTISTRY

APPLICANCES

Harrop, J. and Javid, N. — Reciprocal arms of direct retainers in removable partial dentures — 208

PSYCHOLOGY

Marshall, T.D. — Personal growth — 205

PUBLIC RELATIONS

IN DENTISTRY

Self-interested education in prevention (Editorial) — 56

PULP

TREATMENT

Turner, P.S. — Periodontal-endodontic lesions and their management — 506

PATHOLOGY

Turner, P.S. — Periodontal-endodontic lesions and their management — 506

R

REID, A.E. — The nature of the practice management problem — 190

REID, J.A. AND RUPRECHT, A. — Simple method of accommodating to fast dental x-ray films — 447

RETENTION

IN PROSTHETICS

Harrop, J. and Javid, N. — Reciprocal arms of direct retainers in

removable partial dentures — 208

ROENTGENOGRAMS

DENTAL

Oishi, T.T. and Parfitt, G.J. — Effects of varying peak kilovoltage and filtration on diagnostic dental radiographs — 449
Reid, J.A. and Ruprecht, A. — Simple methods of accommodating to fast dental x-ray films — 447

TECHNIQUE

Oishi, T.T. and Parfitt, G.J. — Effects of varying peak kilovoltage and filtration on diagnostic dental radiographs — 449
Reid, J.A. and Ruprecht, A. — Simple methods of accommodating to fast dental x-ray films — 447

ROOT CANAL TREATMENT

Turner, P.S. — Periodontal-endodontic lesions and their management — 506

ROZANIS, J., SCHOFIELD, IAN AND KOGON, S.L. — Simulated dry socket: delayed healing of extraction wounds in rats — 41

RUPRECHT, A. — See Reid, J.A.

S

SCHOFIELD, IAN, ROZANIS AND KOGON — See Rozanis, J.

SIGNER, D.J. — A simplified immediate maxillary denture — 457

SILVERBERG, D.S. — The dentist's role in hypertension detection — 549

SIMPSON, W.J. AND CHEUNG, D.K. — Developing infant occlusion, related feeding methods and oral habits. Part I. Methodology and results at 4 and 8 months — 124

SIMPSON, W.J. AND CHEUNG, D.K. — Developing infant occlusion, related feeding methods and oral habits. Part II: Discussion and conclusion — 135

SPECIAL FEATURES

CDA Task Force on continuing education — 81

CFDE 1975 Progress Report — 177

Chapnick, L.A. and Main, J.H.P. — Cementum in cleidocranial dysostosis — 139

Current developments in periodontics — 31

Dimitri, Marjorie — CFDE — A helping hand — 444

Dungy, A.F. — General dental care of the cleft palate patient — 356

Federal income tax returns by dentists — 87

Fleming, W.J. and Ellis, R.L. — The changing emphasis on practice administration — 199

Goodin, I.F. and Frost, L.J. — Management of an odontogenic keratocyst: Report of a case — 144

Hargreaves, J.A. — Preventive dentistry for handicapped children — 352

Harrop, T.J. and Mackenzie, R.S. — The future of dental education in Canada (Viewpoints on Education) — 69

Heffernan, Robert F. — The dentist as business administrator — 201

Johnson, R.H. — The whys and wherefores of periodontal surgery — 31

Johnston, Donald J. — How does the professional cope with inflation? — A tax lawyer's viewpoint — 27

Kamen, S. — History of dentistry for the handicapped: past, present and future — 347

Link, K. Diane — Managing a dental practice — 203

Munroe, C.O. — Provision of a general anaesthetic service for restorative dentistry — 354

Mutter, G. — Effects of teacher training — 78

Oishi, T.T. and Parfitt, G.J. — Effects of varying peak kilovoltage and filtration on diagnostic dental radiographs — 449

Proctor, D.B. — NDEB evaluates four years' experience — 20

Reid, A.E. — The nature of the practice management problem — 190

Reid, J.A. and Ruprecht, A. — Simple methods of accommodating to fast dental x-ray film — 447

Simpson, W.J. and Cheung, D.K. — The developing occlusion of infants, related feeding methods and oral habits. Part I: Methodology and results at 4 and 8 months — 124

Simpson, W.J. and Cheung, D.K. — The developing occlusion of infants, related feeding methods

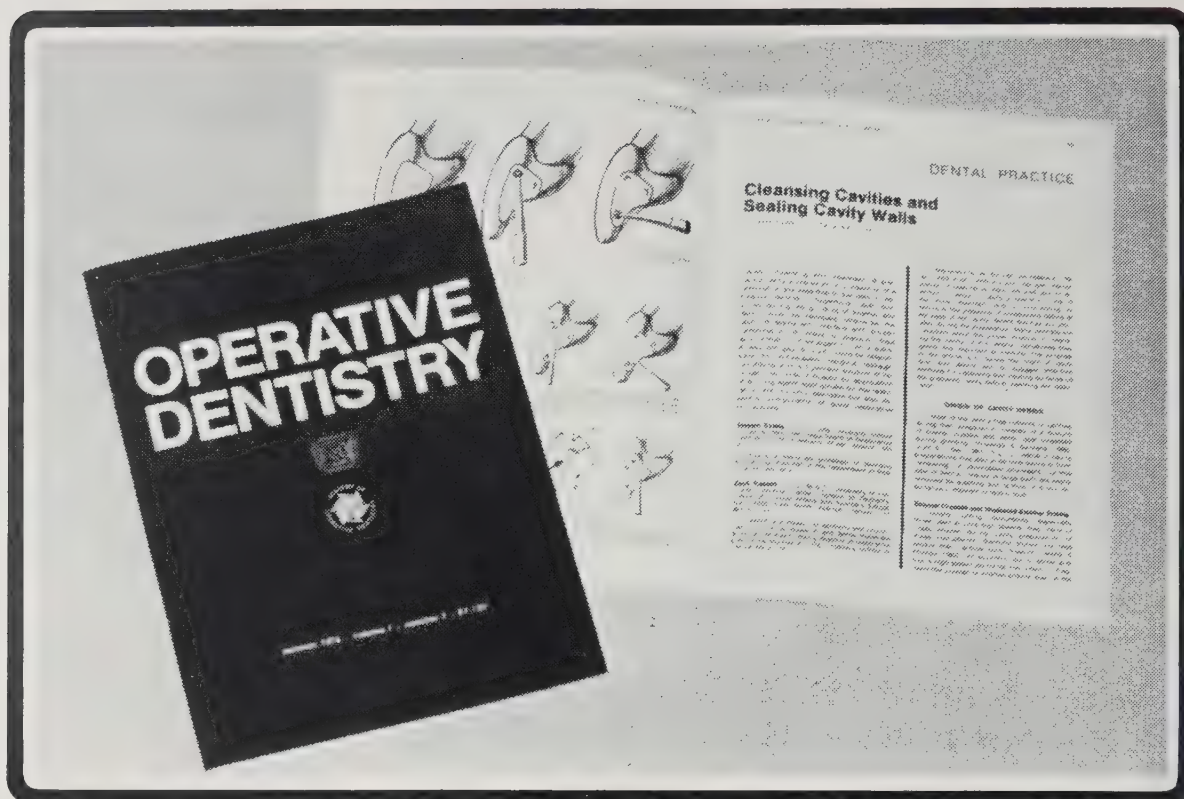
- and oral habits. Part II: Discussion and conclusions — 135
 Sperber, G.H. — Tusks — 257
 Stakiw, J. — Wound healing and its periodontal implications — 35
 SPERBER, G.H. — Tusks — 257
 SPERBER, G.H. — Comments on paper by A.H. Melcher — 596
 STAKIW, J. — Wound healing and its periodontal implications — 35
 SUCCINYLCHOLINE
 Precious, D.S. — Succinylcholine-induced apnoea — 358
 SURGERY
 ORAL
 Daigle, I., Elie, R., Gareau, J. and Chesnay, G. — Comparison of the effects of floctafenine and codeine on postsurgical pain — 301
 SYSTEMIC CONDITIONS
 Chapnick, L.A. and Main, J.H.P. — Cementum in cleidocranial dysostosis — 139
 SZAINWALD, K.S. AND ANDERSON, D.L. — See Anderson
 T
 TEMPOROMANDIBULAR JOINT DISEASES AND DYSFUNCTIONS
 Kilgore, T.B., Booth, D.F. and Hersh, H. — Auditory canal haemorrhage with contralateral condylar fracture: report of a case — 455
 Speck, J.E. and Zarb, G.A. — Temporomandibular joint pain-dysfunction: a suggested classification and treatment — 305
 COSTEN'S SYNDROME
 Speck, J.E. and Zarb, G.A. — Temporomandibular joint pain-dysfunction: a suggested classification and treatment — 305
 TURNER, P.S. — Periodontal-odontic lesions and their management — 506
 TUSKS
 Sperber, G.H. — Tusks — 257
 X
 X-RAY
 FILM
 Reid, J.A. and Ruprecht, A. — Simple methods of accommodating to fast dental x-ray films — 447
 TECHNIQUE
 Oishi, T.T. and Parfitt, G.J. — Effects of varying peak kilovoltage and filtration on diagnostic dental radiographs — 449
 Reid, J.A. and Ruprecht, A. — Simple methods of accommodating to fast dental x-ray films — 447

INDEX ANNUEL

Volume 42, 1976

- D
 DECES — Voir Deaths dans l'index anglais
 DENTUROLOGISTES
 Lambert, R. — Une dimension nouvelle à la profession — 572
 DIMITRI, MARJORIE — Le FCED — une main secourable — 472
 E
 EDITORIALES
 Lambert, R. — Une dimension nouvelle à la profession — 572
 La promesse de notre bonne fortune — 470
 ENSEIGNEMENT DENTAIRE
 La Promesse de notre bonne fortune — 470
 Dimitri, Marjorie — Le FCED — une main secourable — 472
 EXERCICE DENTAIRE
 Lambert, R. — Une dimension nouvelle à la profession — 572
 G
 GALINDO, Y. — Conseil pratique pour faciliter la prise de radiographies periapicales à la mandibule — 38
 GRAVEL, ANDRE ET VALIQUETTE, JACQUES — Voir Valiquette
 H
 HYGIENISTS DENTAIRES
 Dimitri, Marjorie — Le FCED — une main secourable — 472
 L
 LAMBERT, R. — Une dimension nouvelle à la profession — 572
 O
 OBTURATEURS ET APPAREILS SEMBLABLES
 Valiquette, Jacques et Gravel, André — L'obturateur du voile du palais — 213
 P
 PERSONNEL AUXILIAIRE
 Lambert, R. — Une dimension nouvelle à la profession — 572
 PROTHESE DENTAIRE
 APPAREILS
 Valiquette, Jacques et Gravel, André — L'obturateur du voile du palais — 213
 R
 ROENTGENOLOGY
 TECHNIQUE
 Galindo, Y. — Conseil pratique pour faciliter la prise de radiographies periapicales à la mandible — 38
 S
 SCIENCE ECONOMIQUE
 PAR RAPPORT A L'EXERCICE DENTAIRE
 La promesse de notre bonne fortune — 470
 V
 VALIQUETTE, JACQUES ET GRAVEL, ANDRE — L'obturateur du voile du palais — 213

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ALBERTA — Calgary. Well established 2-man practice. Ultra modern 7-operator office in new professional building. Excellent location. Write: Box 10, Site 23, R.R.2, Calgary, Alta. T2P 2G5.

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ONTARIO — Toronto. Dental practice for sale. Gross \$90,000. North Metro Toronto. No down payment. Reply to CDA Box Number 1645.

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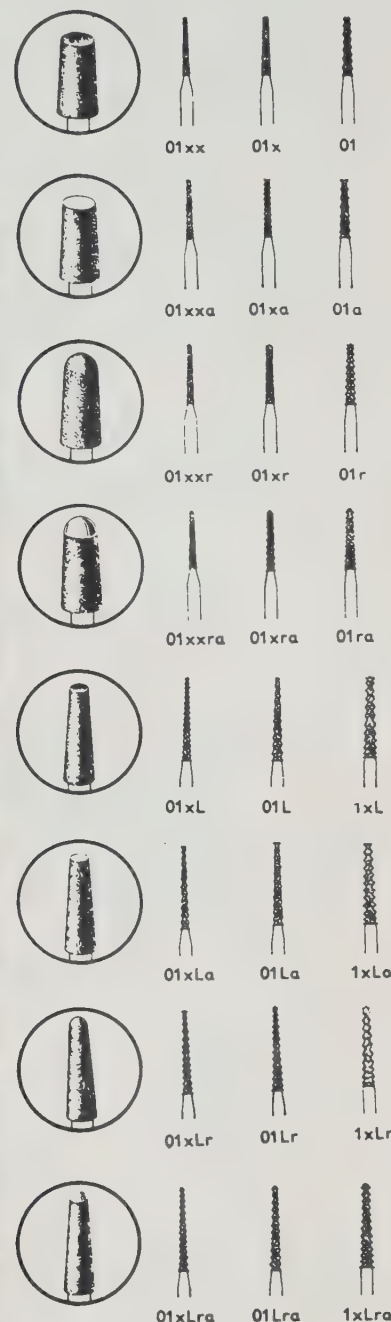
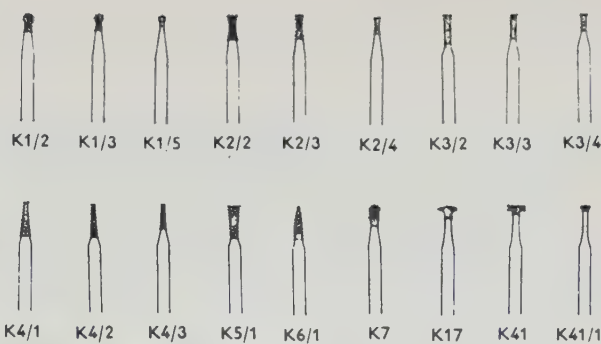
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To pay accounts and keep accurate records of receipts and disbursements.

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Other duties would be designated as the need arose.

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